

Training Manual on Value Chain in Agriculture

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By

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Foreword



The Value chain sector is one of the important drivers of agricultural growth and agribusiness diversification in India. The rising global demand for agribusiness products, various trade dialogues and transformation of rural markets in India, have significantly expended intercontinental markets for value chain especially in agriculture. Such development offers huge export potential to India. A value chain in agriculture identifies the set of actors and activities that bring agricultural product from production in the field to final consumption, where at each stage value is added to the product. A value chain can be a vertical linkage or a network between various independent business organizations and can involve processing, packaging, storage, transport and distribution. However, immense literature is available on subject of supply chain, with respect to value chain in agriculture are very less. The attempts in this direction by the economists are noteworthy. Keeping this in view, this manual focus on significance of value chain which helps to find new ways of doing agribusiness, role of government in regulating policies which helps in poverty alleviation and providing livelihood security, barriers to entry in value chain, standards for estimating production efficiencies, success factors and scope of value chain, need of innovation and profitability indicators in value chain. This manual focus lights on these issues and provides appropriate solutions to harness the potential of agribusiness value chain which can generate effective marketing programmes and services to clients.

This publication is one of the outcomes of the project of National Agricultural Innovation Project (NAIP) in Component-1 of “Learning and Capacity Building” (L&CB) on “Policy Support for Strengthening the Value Chain to Address Challenges of Globalization” carried out by Dr.G.P.Reddy as Principal Investigator. I complement Dr. Reddy for bringing out such a useful publication.

I am sure that, it will serve as a reference guide for development and application of various value chain concepts and issues in agriculture.

A handwritten signature in dark ink, appearing to read 'S.L. Goswami'.

(S.L. Goswami)
Director, NAARM

Preface

Agriculture is a primary activity in many developing countries which as still constitute the backbone of the economy. However, the agriculture sector often faces many confronts. A reflective and prolonged lack of investment in agriculture is evident in many countries. Exceptionally, infrastructure is missing in rural areas coupled with lack of opportunities for income diversification which is greatly influenced by poor functioning of markets to weaken economic growth. Transformation in the global food demands, agriculture is reaping the benefits of technological innovation especially in value chain process and also there is growing recognition among government and patron agencies that agriculture must be the basis for any development and policies promoting economic growth. This has allowed stakeholders of value chain to make better, more informed decisions about how to run their own operations. Many benefits have been realized such as resource optimisation, widen markets, improved productivity, reduced waste, increased efficiency, lower capital requirements and enhanced product development are just a few. Traditionally, the operational performance of any enterprises has been measured in terms of financial accountability and profit. However, in the global knowledge economy, agriculture value chain performance should be measured in terms food security, sustainability, income stability and environment safety. Therefore, we need to evaluate the value chain at every stage of the market in the path of economic development and take corrective action wherever needed.

This manual is a step in the direction and is aimed at presenting agriculture value chain and its management, initiatives, measures of each process of different enterprise involved in value chain and role of government in regulating value chain markets. It is expected that, this would help policy makers, social scientist and agriculture value chain experts to know the various activities performed by stakeholders across the value chain in agribusiness.

This manual focus on how all stake holders can be contribute to the provision of different products and services to meet the needs of the end consumer. It also shows the importance of linking and its management in all the supply chain steps together to look at the problem as a whole. The manual concludes that stakeholders can use a value chain approach to look for new ways of income generation in agriculture. A methodology has been developed to measure the benefits gained from each value chain for different products by analysing the intermediary links which are observed across the chain. This manual is expected to fill the gap of lack of adequate literature in the field of value chain especially in agriculture.

Editors,
G.P.Reddy
Vijayachandra Reddy.S.

Acknowledgement

This training manual is based on research work done under the National Agricultural Innovation Project (NAIP) project entitled as “**Agricultural Value Chains**” which is funded by NAIP of Indian Council of Agricultural Research. The training manual mainly spotlight on the stakeholders involved in poverty alleviation. Providing productive employment in agriculture and rural non-farm sector is important for reduction of poverty. Access for land and credit are vital for the poor in agriculture. This situation provides the key concepts to understand changing dynamics of markets especially in value chain scenario. The consumption pattern of most of urban consumers is changing towards high value commodities. However, majority of rural population is still price conscious; they prefer to buy unprocessed grains at lowest price rates. Hence value chain analysis should also look into cost reducing innovations along the value chain to benefit poor consumers besides focusing on value added products. Under this transforming resource utilization patterns, there is a need to understand at issues such as rural-urban linkages, infrastructure, markets, technology and training skills. For this training manual, the concepts of value chains have been referred from various published sources with due acknowledgement. The training manual also focus on various areas of value chain like managing change, barriers of entry, success factors, need of innovation, efficiency measures and significance of government role in regulating market efficiently in public and private mode in value chain process. The necessary technical advice provided by the Director NAARM, **Dr.S.L.Gowsami** is appreciatively acknowledged. We received critical comments and suggestions from the peers, which helped in recasting the manual for better reading. We sincerely acknowledge the timely help of all these experts. **Dr.Vijayachandra Reddy.S.**, who worked as Research Associate has contributed immensely in preparation of this training manual successfully. Our Sincere thanks to **Mr.P.Namdev** from the publications Unit for his excellent designing of cover page and layout of this report.

It is our intense hope that this publication will motivate and facilitate various stakeholders in their efforts to manage and practice for judicious use of limited resources to undertake viable economic activities which can improve incomes much faster.

May, 13, 2014

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CHAPTER 1

INTRODUCTION

The value chain consists of series of actions required to bring a product to final consumers passing through the different phases of production, processing and delivery. Agriculture Value Chain (AVC) can also be defined as a market-focused collaboration among different stakeholders who produce and market value-added products.

Value chain analysis is vital for understanding of markets, their relationships, the participation of different actors, and the critical constraints that limit the growth of agricultural production and consequently the competitiveness of farmers specially small holder farmers. Small farmers currently receive only a small fraction of the ultimate value of their output, even if, in theory, risk and rewards should be shared down the chain. Since, Quality begins from the farm level, In order to achieve products that are of international standards, increased productivity, and are also friendly to human health and environment, farmers should be educated on good agricultural practices. Trainings can be conducted on proper cultivation practices including integrated approach. Transfer of Technology should be given to local resource person who will provide trainings to the farmers.

Access to markets and distribution of risks and gains along different steps of agriculture value chains varies also according to the gender of producers, processors, market agents and according to the economies of scale. Traditional marketing channels with adhoc sales are being gradually replaced by coordinated links among farmers, processors, retailers and others. In this context, the question is not whether, but how to include the different actors in the value chains, including women, applying a balanced approach that takes into account both competitiveness and equity issues. The result, combining the strengths of value chain analysis with the needs of poor value chain farmers, should be a market-based, commercially viable and sustainable solution that, in the long term, will equally benefit all the various actors of the chain.

Value chains are mapped and analyzed using value chain analysis (VCA) which includes qualitative and/or quantitative tools. There are no fixed rules on which research approach is better but there are strong grounds for recommending that a qualitative

approach is used first, and then followed by quantitative approach according to time and resources availability. In conceptual, a value chain analysis that takes into account the policy environment and provision of livelihood services is a very powerful tool for analysing how existing chains are structured and operate. VCA also helps in knowing the farm level decision impact on utilizing crop genetic resources.

Diversification in agriculture favouring Agriculture Value Chain seems to be as a means to ensure food & nutrition security as well as higher profitability. Generally, staple foods are not high value commodities, because the necessity of their consumption leads to demand and supply equilibrium at a relatively low price. The value status of a commodity depends much on demand and supply. As drivers of Value Chain, while in demand side urbanization and income levels are important, in the supply side relative profitability and infrastructures are more important.

The aim of value chain analysis is to identify Strength, Weakness, Opportunity and Threats (SWOT) for value chain development. Under the “Agriculture Value Chain project”, we have selected where there is a scope for expansion of sweet organs for the benefit of small holder farmers and also poor consumers. According to this view, AVC project also focus on value added activities and try to promote their commercialization with adequate technical, financial and infrastructure support.

The main approach to commercialization would be to list the constraints to development of value chains and then make efforts to alleviate those constraints. For example, limited access to modern inputs would imply provision of modern inputs and demonstrations. If successful, this approach might perhaps induce some crop diversification and increase the marketed surplus of some farmers and their income. In order to do this, institutional mechanisms or innovations are very much essential to express their needs for technology, information, capacity development and infrastructure that would raise their business from current to higher levels.

Training manual has attempted to examine the concept of value chain and benefits that could accrue to the players especially producers from the institutional innovations that link production with marketing. The following conclusions are drawn from the review and empirical analysis. Thus institutional innovation helps to bridge the gap between producers and markets which reduces transaction costs to the producers

significantly. However, the extent of decline depends on the nature of commodity, its frequency of transactions. The transaction costs are higher for perishable commodities with greater frequency of sale and vice-versa for less perishable commodities.

The products costs are not much altered due to influence of institutional innovations. However, by reducing transaction costs farmers improve farm profitability substantially. Transaction costs are higher for small producers and they are most benefited from institutional innovations like contract farming or cooperatives or producer's association.

Institutional innovations like contract farming allocate production and price risks between the contracting firm/agency and the farmer. In general the production risks are borne by the producers. Many contract farming schemes provide credit to small producers to ease out the capital constraint in value addition.

Significance of Value Chain in Policy Analysis emerge from this study,

First, Majority of organised markets for value added products are thin and fragmented. In order to regulate these firms should come forward to avoid exploitation from a host of marketing intermediaries and improve farm profitability.

Second, the availability of free extension and support services to the producers has to be increased and checked through privatization of public extension system in delivery of service to the public.

Third, the value addition in agriculture is labour intensive and its promotion through institutional innovations generates opportunities for employment to many producers. Integration of production with marketing, processing and distribution creates employment and income generating opportunities agriculture and allied industries.

Fourth, In value chain, firms vertical integration is very important to keep on improving the quality of the produce right from stage of production to packaging, and thus educating farmers about the quality issues such as Sanitary and Phytosanitary standards (SPS) which vital for international trade.

Fifth, Thus in Value chain, institutional innovation is therefore necessary to bring change in policies and also to develop guidelines for Value chain by the states under respective agricultural jurisdiction. Value chain in agriculture should be encouraged and legalized through appropriate policies, so as to protect the interests of players involved in agriculture value chain especially producers and consumers.

Objective of the manual

Agricultural growth is necessary not only for attaining high overall growth but also for eradication of poverty. Further, agriculture should be facilitate accelerated and sustainable transformation of Indian agriculture for poverty alleviation and income generation by the application of agricultural innovations in value chain through collaboration among farmers and farmers and players involved in agriculture value chain.

A value chain is a group of independent players connected together through the products and services that they separately and /or jointly add value on in order to deliver produce to the end consumer. It is very much an extended concept of a management which adds value to its products or services and delivers produce to customers. But we have to focus on what is the benefit of understanding the value adding from supply side in agriculture; here we have to think how we can increase the efficiency in agricultural holdings especially in small and marginal farmers. Here comes, agriculture value chain importance especially in country like India, where 80 per cent of holdings are less than 2 hectare and they account nearly 40 per cent. The reduced operational holdings implies that the small holder farmers should enhance their income from the small holdings both through increased farm productivity and increased value from farm output to meet growing cash needs.

The constant change in taste and preferences, income growth and rapid urbanization, the demand for value added commodities like ready to cook food items and agricultural commodities are growing fast. It is well known that, small holders will more easily available labor than capital and value addition chain requires more labor. This situation coupled with high demand for value added food commodities offers an opportunity to intensify the value based production.

There are many studies (Birthal *et al.* 2008, and Delgado *et al* 1999) on agriculture value chains in India addressing various agriculture value crops, but there is no literature available on managing value chain, measuring efficiency, barriers to entry, need of innovation and role of government and its impact on value chain players. Keeping this knowledge gap in mind, this training manual pulls together existing theoretical and empirical literature on value chains and addresses the issue of small holder farmer's participation in agriculture value chain. Apart from providing a conceptual clarity and framework for analysis of value chains, the manual aims to Limelight on the different concepts of value chain, methods of assessment of value chains, policy implications to strength the vertical integration among players in value chain, need on innovation, examine the relevant case study (sweet oranges) of value chain and significance and success factors of value chain in agriculture.

CHAPTER 2

Theoretical and Conceptual Framework of Value and Value chains

What is Value?

In 1985 Michael Porter, developed and admired the concept of Value Chain in Competitive Advantage framework (Porter, 1985). He defined value as the amount buyers of those who are willing to pay for what a firm provides, and he conceived the “value chain” as the combination of nine generic value added activities operating within a firm – activities that work together to provide value to customers. Porter linked up the value chains between firms to form what he called a Value System; however, in the present era of superior subcontracting and partnership the linkage between multiple firms’ value creating processes has more commonly called as the “value chain.” As this name entails, the primary focus in value chains is on the benefits that accrue to customers, the interdependent processes that generate value, and the resulting demand and funds flows that are created.

A key distinction in defining value is whether the exchange that generates value is between firms or between a firm and a consumer i.e., Business to Consumer (B2C).

There are three forms of value that occur in business to business commercial transactions (Ramsay, 2005) they are as mentioned below

1. Technical (Resource Value);
2. Organizational (Business Context); and
3. Personal (Career and peculiar)

Technical value is inherent to the resource being afforded and takes place in almost all exchanges. For the hungry man, the food has a technical value regardless of the source or any other consideration. The plate can be used or even dirty, and the food will still have the same technical value.

Organizational value are depends upon the context of the exchange and these factors are influenced by range of factors such as moral standards, status, consistency and association. Brand image may build organizational value, as well as company reputation. When at a fine dining establishment, the label on the water bottle generates value far in excess of the bottle's content.

Personal value is imitative from the personal experiences and relationships concerned in the exchange of resources and the benefits make available. While technical and organizational values accumulate to the firms involved in a commercial exchange, personal value accrues to the individual. Whereas, the Manager motivation, preferences, feelings of comfort and trust create value for individuals that engage in trading relationships on behalf of firms and can be extremely influential in the purpose of successful exchange.

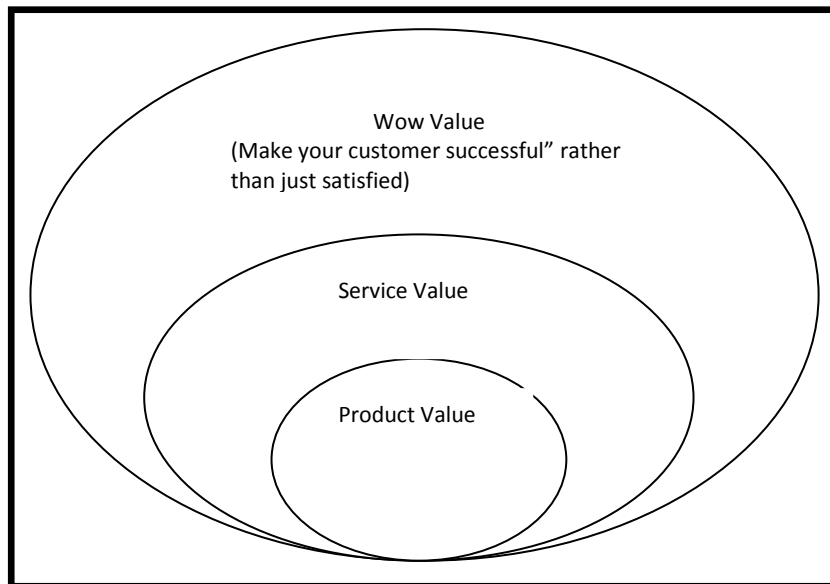
Finally, there are cut-throat forces affecting the market value of any exchange of resources when compared to other firm's offers. Competing firm's offers can wear away value by making the lowest price a deciding factor in estimating an exchange.

At the consumer level of exchange, value is layered, and has been described by three concentric rings in Figure.1 (Clemmer,1990). The centre ring is product value, the technical value derived from providing as a supply source. A second ring of service value is provided by the services that surround the product such as personal care and warranty service. The third ring has been called as the new service/quality combat zone and was made popular by business thinkers such as Peters and Waterman ("In Search of Excellence") (Cooper,1997). This third level of value is attained by providing enhanced service, to "make your customer successful" rather than just satisfied. At this level, the experience surrounding the exchange of resources provides its own unique "wow" value, and the product itself is secondary.

For corporations, the capability of providing value to customers makes profits in excess of costs which creates profit and in turn generates shareholder value. Thus, the value created in exchange is the basic engine that drives our economy. Because value is derived from customer needs, activities that do not contribute to meeting these needs are "non-value-added" waste, in the jargon of lean idea (Womack,2003). Careful consideration of the tasks and functions that occur in many of the firms in which we

serve shows that, considerable waste still available for process improvement activities to uncover and eliminate. By streamlining the processes that generate the goods and services that customer's value, fewer resources need to be expended and the margin increases, improving a firm's profit margin. This is the essence of corporate strategies that focus on operational excellence. In contrast, innovation and marketing strategies focus on improving customer perceptions of the value of goods and services by innovatively improving the perception of what gets delivered. In either strategy, increasing the margin between delivery cost and perceived value is the foundation for improved business performance.

Figure.1. Customer level of exchange value



Why Value Chains are needed in business?

The emergent interest in value chains began with Porter's influential work, "Competitive Advantage," (Porter, 1985) and has increased ever since. Many researchers in the field of business and economics have been concerned with the notion of value since the early work of Adam Smith distinguished between use-value and Exchange-value (Yuan, 2005). This Clearly this indicates that, the interest in value chains is not new concept. In business, however, the primary focus has been on

achieving operational efficiency by leading to a focus on production operations and supply chains. There are a number of significant trends that are now driving the need for operations oriented analysis from a value chain viewpoint. These include

1. The value chain is first and major strategic concept, arising from a strategic theory of firm competition.
2. The growth in global sourcing and supply has begun a long-term process of leveling the playing field for adding value widespread (Gereffi *et al*, 2005). This leads to the need of model global value chains as the predominant mode of business in many industries.
3. Improving the operational capability of other value added activities in the enterprise, such as product development, requires shifting perspective from the supply chain to the value chain (Sherer, 2005).

A final reason for the growing interest in Value Chains may simply be the nature of management fashion trends in academic and management discourse. A lifecycle process revealing how management knowledge entrepreneurs participate in the creation of trends in discourse was described in a study of Quality Circles by Abrahamson and Fairchild (Friedman, 2005).

Agricultural Value Chain (AVC)

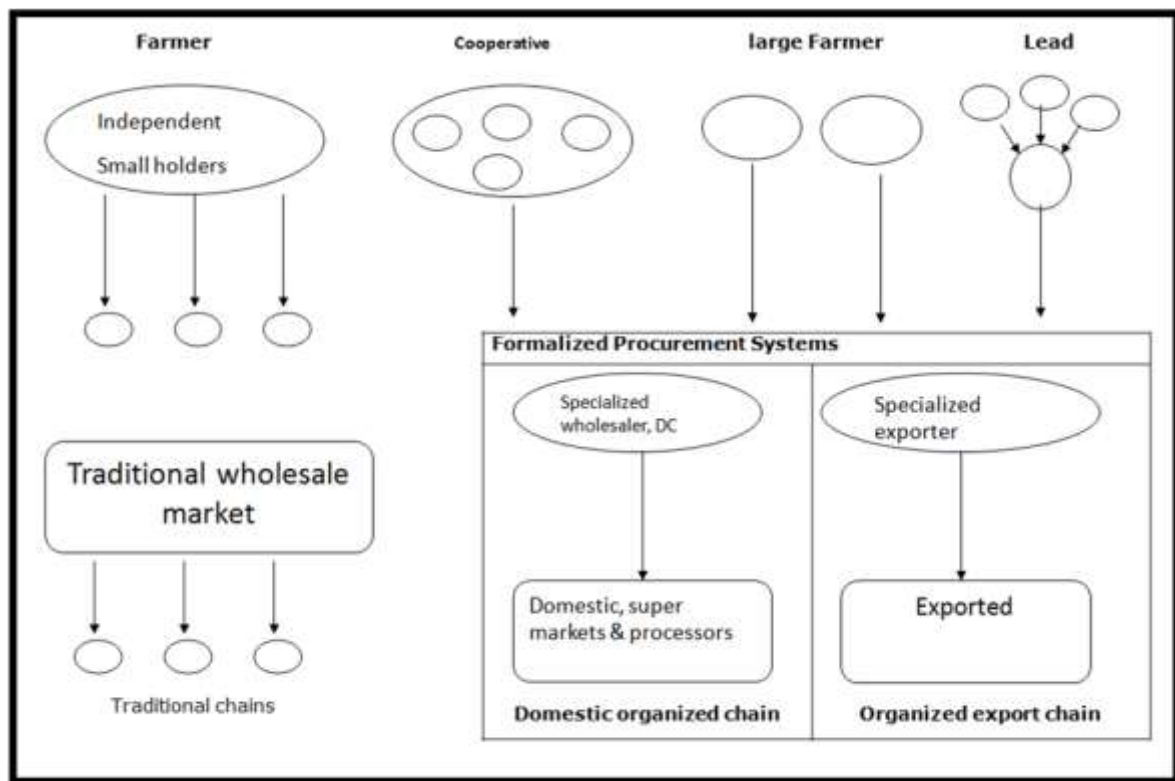
A value chain in agriculture identifies the set of actors and activities that bring agricultural product from production in the field to final consumption, where at each stage value is added to the product. A value chain can be a vertical linkage or a network between various independent business organizations and can involve processing, packaging, storage, transport and distribution. There are two types of value chains presented in figure.2. *Viz.*,

1. Traditional Agricultural Value Chains
2. Modern Value chains

Traditional Value Chains: Traditional agricultural value chains are generally governed through spot market transactions involving a large number of small retailers and producers.

Modern value chains: These value chains are characterized by vertical coordination, consolidation of the supply base, agro-industrial processing and use of standards throughout the chain

Fig.2. Traditional and Modern Value Chains

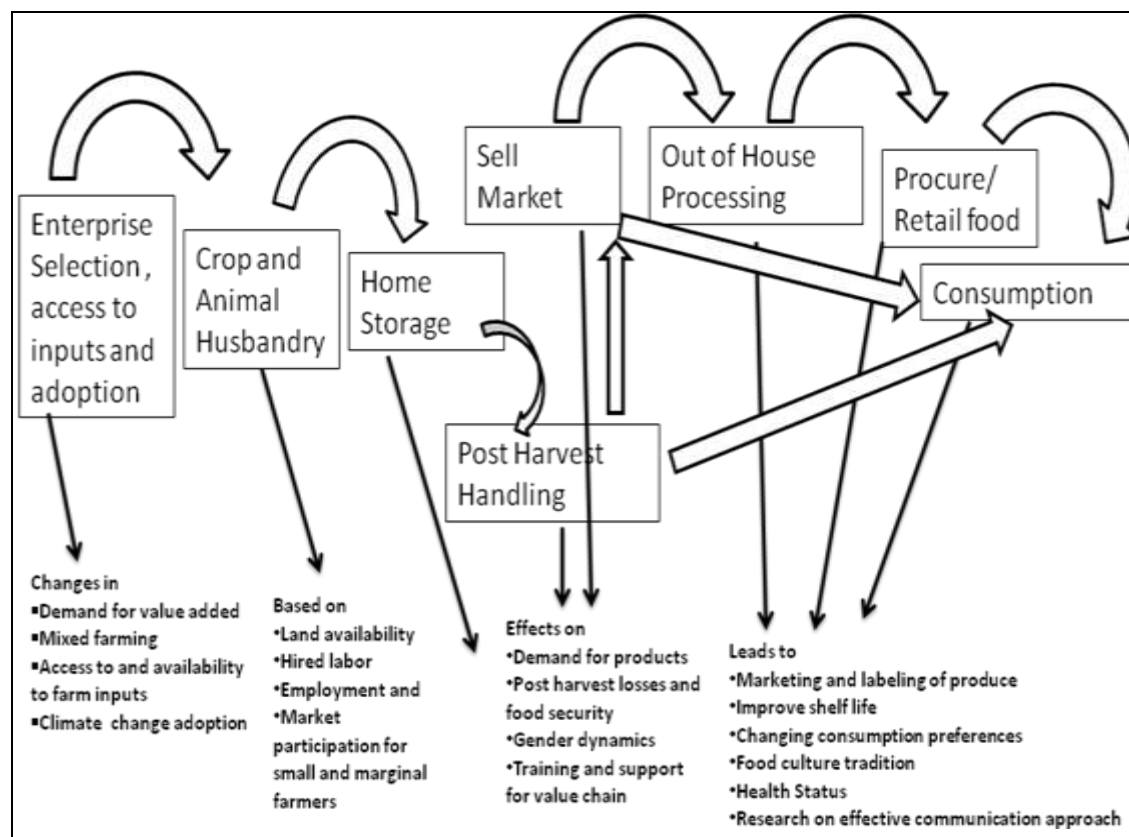


CHAPTER 3

Agricultural Value Chain Definition

A value chain describes the full range of activities required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers and final disposal after use (Kaplinsky and Morris 2000) See figure.3.

Figure.3. Value Chain in Agriculture

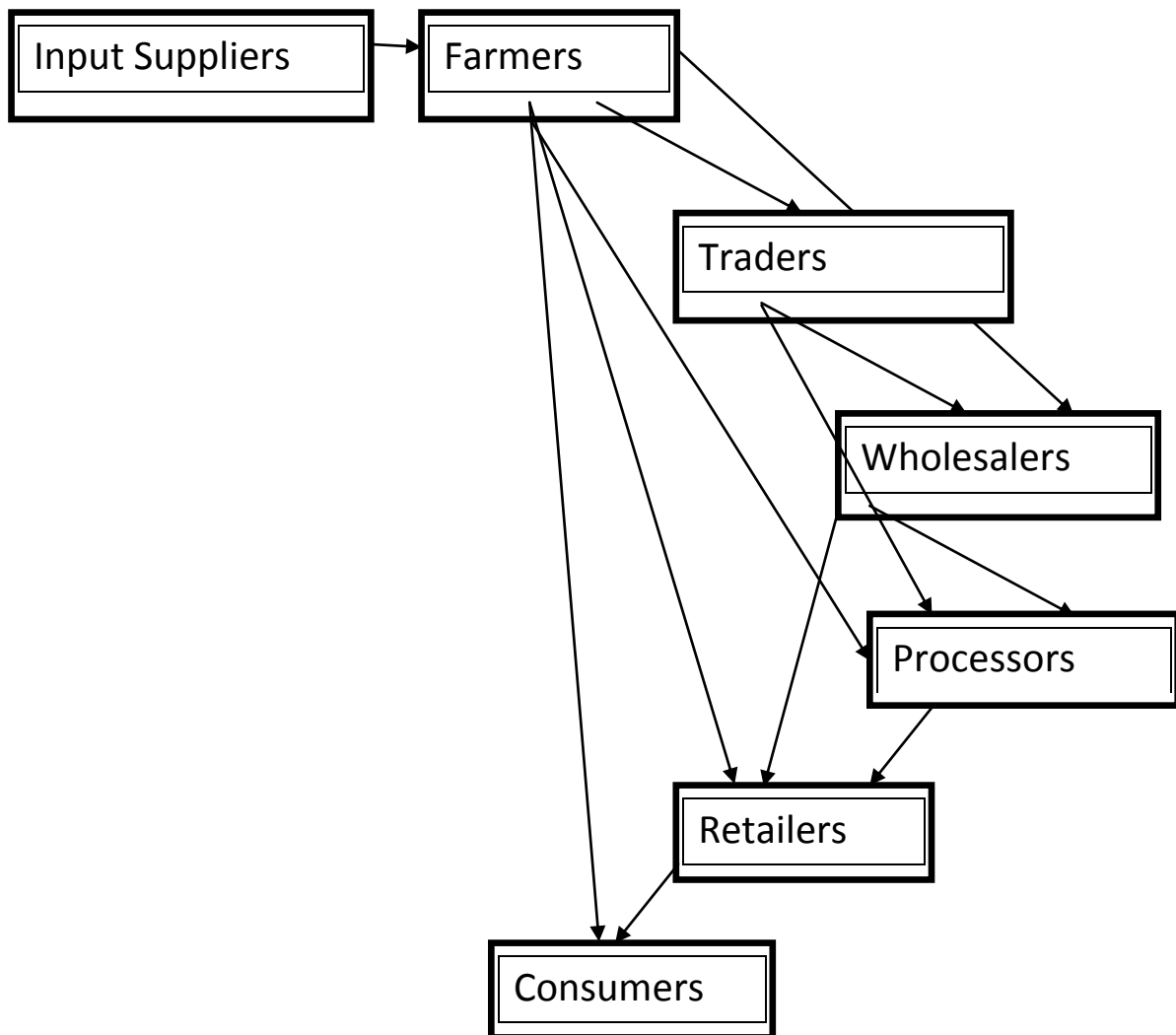


Source: Alex Bambona, 2011

Value Chain Maps

The value addition in different phases of production can be mapped into a value chain map for easy understand, which depicts inter-linkages between successive stages in the value chain. A simplified value chain map (Qualitative only) can be expressed in figure.4

Figure.4. A Value chain map



As markets develop, the value chains will become more complex with more competing channels both for inputs and outputs. A wide range of participants from smallholder farmers to transnational retailers with a wide range of technologies such as small-scale juice vendors to large sugar manufacturing plants will participate in value chains. Understanding the value chain is important as it explores why farmers behavior with respect to the change in institutional and market infrastructure and demand situations. The value chain maps are helpful in understanding these chain actions throughout the value chain. The market map is an analytical tool that helps in understanding policy issues that affect the functioning of the chain and also the institutions and organizations providing the services (eg market information, quality standards) that the different chain actors need in order to make better informed decisions.

Box.1. Value chain Map helps in maximizing the resources allocation

Leading value chains have developed relatively simple methods to identify how they may maximum use of their resources by managing the determinants of quality. They accomplish this through identifying the relationships that exist between activities performed along the route followed by individual products – from production through to consumption. Known as a value chain map, the outcome is a schematic description of the activities occurring along the value chain, their potential to impact performance if not correctly managed, and the factors that need to be reflected in the chain’s management process. The chain map is developed by physically walking the chain, identifying how current practices are performed, and developing metrics which will enable the entire chain (not just individual units of the chain) to continually improve its resources and capacity, then provide incentives for them to continually improve performance.

Communication is an extremely important aspect of effective value chain management. It provides partners with an opportunity to express their needs and constraints. It also provides them with the opportunity to voice concerns about their own or others’ performances. Furthermore, it ensures that when decisions are made, partners will know their exact roles and how their performance will be measured, and that they are rewarded in an equitable manner that reflects the value they have contributed to the value chain. The results of monitoring chain performance, consumer research, and (R&D) activities must be communicated to all chain partners. By doing so, they can determine how to use each individual partner’s ability and remain loyal to the chain. Effective communication is the cornerstone of any meaningful governance system (Martin Gooch and Abdel Felfel, 2008).

CHAPTER 4

Significance of Value Chain in Present Scenario

Agricultural value chain plays an important role not only in stimulating production and consumption; it also accelerates the pace of economic development. Its dynamic functions are of primary importance in promoting economic development. For this reason, it has been described as the most important multiplier of agricultural development.

The importance of agricultural value chains in economic development are listed below.

1. Optimization of Resource Use and Output Management

An efficient agricultural value chain system leads to the optimization of resource use and output management. An efficient marketing system can also contribute to an increase in the marketable surplus by scaling down the losses arising out of inefficient processing, storage and transportation. A well-designed system of value chain can effectively distribute the available stock of modern inputs, and thereby sustain a faster rate of growth in the agricultural sector.

2. Increase in Farm Income

Value chain in agricultural production systems will make higher levels of income for the farmers by reducing the number of middlemen or by restricting the commission on marketing services and the malpractices adopted by them in the marketing of farm products. An efficient system induces and guarantees the farmers better prices for farm products.

3. Widening of Markets

An efficient and well-knit marketing system widens the market for the products by taking them to corners both within and outside the country, i.e. to areas far away from the production points. The widening of the market helps in increasing the demand on continuous basis, and thereby guarantees a higher income to the producer farmer. At the

same time it helps a large number of consumers in satisfying their demand for various farm products.

4. Growth of Agro-based Industries

An improved and efficient system of agricultural marketing helps in the growth of agro-based industries and stimulates the overall development process of the economy. Many industries like cotton, sugar, edible oils, food processing and jute depend on agriculture for the supply of raw materials.

5. Price Signals

An efficient marketing system helps the farmers in planning their production in accordance with the needs of the country. This work is carried out by the marketing system through transmitting price signals at different stages of marketing, which helps the farmers, market functionaries in planning their buying and selling activities.

6. Adoption and spread of new technology

The value chain system helps the farmers in the adoption of new scientific and technical knowledge. New technology requires higher investment and farmers would invest only if they are assured of market clearance of their surplus production at remunerative prices.

7. Employment Creation

An efficient value chain system provides employment to millions of persons engaged in various activities, such as assembling, packaging, transportation, storage and processing. Persons like commission agents, brokers, traders, retailers, weigh men, hamals, packagers and regulating staff are directly employed in the marketing system. Apart from this, several others find employment in supplying goods and services required by the marketing system.

8. Addition to National Income

Marketing activities add value to the product thereby increasing the nation's gross national product and net national product.

9. Better Living

The marketing system is essential for the success of the development programmes which are designed to uplift the population as a whole. Any plan of economic development that aims at diminishing the poverty of the agricultural population, reducing consumer food prices, earning more foreign exchange or eliminating economic waste to quote a few therefore, to pay special attention to the development of an efficient marketing for food and agricultural products. In the absence of an efficient marketing system, farmers receive lower prices, consumers pay higher prices, and lots of agricultural products are wasted.

Players in Value Chain

1. Farmers or Producers

Most farmers or producers, perform one or more marketing functions. They sell the surplus either in the village or in the market. Some farmers, especially the large ones, assemble the produce of small farmers, transport it to the nearby market, sell it there and make a profit. This activity helps these farmers to supplement their incomes. Frequent visits to markets and constant touch with market functionaries, bring home to them a fair knowledge of market practices. They have thus, an access to market information, and are able to perform better, to the same extent as the functions of market middlemen.

2. Farmer to Middlemen

Middlemen are those individuals or business concerns which specialize in performing the various marketing functions and rendering such services as are involved in the marketing of goods. They do this at different stages in the marketing process. The middlemen in food grain marketing may, therefore, be classified into five groups as follows.

2.1 Merchant Middlemen

Merchant middlemen are those individuals who take title to the goods they handle. They buy and sell on their own and gain or lose, depending on the difference in the sale and purchase prices. They may, suffer loss with a fall in the price of the product.

a) Wholesalers:

Wholesalers are those merchant middlemen who buy and sell food grains in large quantities. They may buy either directly from farmers or from the other wholesalers.

Important functions of the whole salers are as follows:

1. They assemble the goods from various localities and areas to meet the demands of the buyers.
2. They sort out the goods in different lots according to their quality and prepare them for the market.
3. They equalize the flow of goods by storing them in the peak arrival season and releasing them in the off-season.
4. They regulate the flow of goods by trading with buyers and sellers in various markets.
5. They finance the farmers so that the latter may meet their requirements of production inputs; and
6. They assess the demand of prospective buyers and processors from time to time, and plan the purchase and movement of the goods over space and time.

b) Retailers:

Retailers buy goods from wholesalers and sell them to the consumers in small quantities. They are producers' personal representatives to consumers. Retailers are the closest to consumers in the marketing channel.

c) Itinerant traders and Village Merchants:

Itinerant traders are petty merchants who move from village to village, and directly purchase the produce from the cultivators. They transport it to the nearby primary or secondary market and sell it there. Village merchants may have their small establishments in villages. They purchase the produce of those farmers who have either taken finance from them or those who are not able to go to the market.

d) Mashakores:

This is a local term used for big retailers or small wholesalers dealing fruits and vegetables. Earlier, the Mashakhores used to deal only in one or two fruits and vegetables, purchasing from the commission agents or wholesalers in substantial quantities usually three to four quintals of vegetables like potato, onion, carrot, okra, tomato, and spinach. They usually sell to the bulk consumers like hotelwalas, paramilitary units or small retailers/vendors in lots of around 5 kg to 10 kg each. However, in recent years, mashakhores have started retailing to all types of customers without the condition of a minimum quantity.

2.2 Agent Middlemen

Agent middlemen act as representatives of their clients. They do not take title to the produce and, therefore, do not own it. They merely negotiate the purchase and/or sale. They serve as buyers or sellers in effective bargaining. Agent middlemen are of two types.

a) Commission Agents or Arthatias: A commission agent is a person operating in the wholesale market who acts as the representative of either a seller or buyer. He is usually granted broad powers by those who consign goods or who order the purchase. Commission agent normally takes over the physical handling of the produce, arranges for its sale, collects the price from the buyer, deducts his expenses and commission, and remits the balance to the seller.

Commission agents or arthatias in unregulated markets are of two types Kaccha arthatias and Pacca arthatias: Kaccha arthatias primarily act for the sellers, including farmers. They sometimes provide advance money to farmers and itinerant traders on the condition that the produce will be disposed of through them. A pacca arthatia acts on behalf of the traders in the consuming market. Commission agents extend the following facilities to their clients:

1. They advance 40 to 50 percent of the expected value of the crop as a loan to farmers to enable them to meet their production expenses.
2. They act as bankers of the farmers. They retain the sale proceeds, and pay to the farmers as and when the latter require the money.

-
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3. They offer advice to farmers for purchase of inputs and sale of products.
 4. They provide empty bags to enable the farmers to bring their produce to the market the latter come to the market for the sale of their produce.
 5. They provide food and accommodation to the farmers and their animals and
 6. They help the farmers in times of personal difficulties.

b) Brokers: Brokers render personal services to their clients in the market; but, unlike the commission agents, they do not have physical control of the product. The main function of a broker is to bring together buyers and sellers on the same platform for negotiations. Their charge is called brokerage. Brokers usually have no establishment in the market. They simply wander about in the market and render services to clients. There is no risk to them. They do not render any other service except to bring the buyers and sellers on the same platform. In most regulated markets, brokers do not play any role because goods are sold by open auction.

2.3 Speculative Middlemen

Those middlemen who take title to the product with a view to making a profit on it are called speculative middlemen. They are not regular buyers or sellers or produce. They specialize in risk taking. They buy at low prices when arrivals are substantial and sell in the off season when prices are high. They do the minimum handling of the goods. They make profit from short-run as well as long-run price fluctuations.

2.4 Processors

Processors carry on their business on their own or custom basis. Some processors employ agents to buy for them in the processing areas, store the produce and process it throughout the year on continuous basis. They also engage in advertising activity to create a demand for their processed products. They add form utility to agricultural commodities.

2.5 Facilitative Middlemen

Some middlemen do not buy and sell directly but assist in the marketing process. Marketing can take place even if they are not active. But the efficiency of the system

increases when they engage in business. These middlemen receive their income in the form of fees or service charges from those who use their services. The important facilitative middlemen are:

Hamals or labourers: They physically move the goods in market place. They do unloading from and the loading on to bullock carts or trucks. They assist in weighing the bags. They perform cleaning, sieving, and filling jobs and stitch the bags. Hamals are the hub of the marketing wheel. Without their active co-operation, the marketing system would not function smoothly.

Weighmen: They facilitate the correct weighment of the produce. They use a pan balance when quantity is small. Generally, the scale beam balance is used. They get payment for their services through the commission agent. The weighbridge and electronic balance system of weighing also exist in big markets.

Graders: These middlemen sort out the product into different grades, based on some defined characteristics, and arrange them for sale. They facilitate the process of prices settlement between the buyer and the seller.

Transporters: They assist in the movement of the produce from one market to another. The main transport means are the railways and trucks. Bullock carts or camel carts or tractor-trolleys are also used in villages for the transportation of food grains, oilseeds, cotton and vegetables.

Communication Agency: It helps in the communication of the information about the prices prevailing and quantity available, in the market. Sometimes, the transactions take place on the telephone. The post and telegraph, telephones, newspapers, the radio and informal links are the main communication channels in agricultural marketing. All these agencies, providing these services, play an important role in the marketing system.

Advertising Agency: It enables prospective buyers to know the quality of the product and decide about the purchase of commodities. Newspapers, the radio, television and cinema slides are the main media for advertisements.

Auctioners: They help in exchange function by putting the produce for auction and bidding by the buyers.

CHAPTER.5

Managing Change in the Path of Value Chains

Value chain management can be viewed as a primary driver of both customer and shareholder value. As a significant commitment to finite resource stocks (e.g., human resources and time) is necessary to manage value chain relationships, strategy decisions aimed at maximizing performance cannot be made related to a single relationship to the exclusive of others. Rather, the issue of global value chain management necessitates a managers' understanding of the unique needs of each relationship and effective management of multiple relationships, a firm can maximize overall perform, where performance is conceptualized under the rational goal model that views firms as striving for efficiency and productivity.

This is a step towards a strategy of value chain excellence is change management. Everything else is for naught if you don't execute successfully. This chapter gives practical advice on how to increase your chances of success on the path of value chain excellence.

1.1 Value chain people just too busy?

The lives of modern value chain players look just like those of other senior executives. They are constantly connected with little downtime to recharge. They often find themselves at the center of storm, striving to balance very demanding operational objectives with the need to satisfy customers, cut costs and help grow revenue. They must find ways to operate successfully today, yet also improve rapidly to be competitive in the future. Improvement means getting projects in the same maelstrom of competing priorities and limited time as their peers, but with the added responsibility of a much broader horizontal responsibility and less direct control than many other executives have.

Transforming the value chain to achieve excellence and drive the players' value that requires careful attention to project and change management. Value chain professionals often find themselves ill equipped to accomplish the task. This stems parts

from a lack of disciplined application of the project and change management principles and partly results from simply being too busy to have the time to do things. Many value chain players we talk with concede that they could have been avoided. In addition, people don't stay in their jobs for longer time in the dynamic business environment today. All the constant turnover and turmoil raise tremendous barriers to getting things done. Successful execution of value chain excellence strategy requires more than just a competent value chain executive, it requires involvement and support of the entire senior management team.

1.2 Problems with value chain projects

In our audits, we often hear value chain initiatives that lost momentum and died. As any good project professional knows, projects fail for many reasons, from underestimating the size of the project, lack of good project leadership to technical deficiency. But in our experience, value chain projects have unique issues that make them particularly challenging.

1.3 Fixing the wrong thing

A line manager from a manufacturing company told us of a chronic problem in its paint system. Defects such as small dark specks in the paint finish would show on about 2 per cent of the units, causing a huge rework cost for the plant, which produced at a high volume every day. The plant manager could hardly contain his frustration as his team launched project after project in a futile attempt to fix the problem, literally spending millions of rupees on possible solutions. As they later discovered, they were simply treating symptoms not the root cause and the defects continued unabated.

Despite huge complexity, executives must challenge themselves to ensure their strategy and execution plan addresses the root cause of problems. And in most cases, nothing beats walking the process or “riding the truck” to see firsthand the physical flow. Any project is unlikely to be successful if at least the most senior value chain executive and other members of the team aren't getting up, away from high level reports and seeing the lines and processes operating. The project management plan needs to include regular “oversight by walking around” checkpoints to make sure that problems obscured or hidden by quantitative reporting are ferreted out.

1.4 Failing to draw a line in the sand

As we've seen, the value chain excellence requires an expansive view of value chain from raw materials to customers. As a result, projects are so complex that it is easy to let a project grow too big and become unmanageable. Scope management is crucial in any project, but the nature of value chain projects makes it especially important.

1.5 Inability to quantify the benefits of the change

As we stated in the earlier chapter, "benefits not quantified equal worthless benefits." Since most of the cost and inventory in the firm depends on how efficiently the value chain functions, there is often economic profit benefits associated with improvement initiatives. Yet many value chain professionals lack a financial orientation and struggle to quantify benefits. Their comfort zone consists of making real physical and process changes and leaving scorekeeping to others. Many value chain projects have been derailed because the benefits were not clearly measured, articulated and tracked. However, the benefits can be three critical areas. The study suggests that, the initiatives must first provide better produce availability followed by working capital (inventory) improvement and cost reduction all these are key drivers of economic profit. Hence there is inevitability to focus on these drivers in value chain to quantify the benefits from the value chain process.

1.6 Shortage of value chain experts

The few key people who have focused value chain expertise are very scarce. Value chain must be planned around these critical resources. Excessively overloading these scarce resources leads to frustration, missed details, missed deadlines and often failure.

1.7 Significant Risks

Since the value chain is lifeblood of the market players any changes to it can carry huge risk. The value chain disruptions can have a devastating impact on shareholder value. A common blind spot for many firms is the inadequate management

of the risk associated with value chain initiatives’. There are numerous examples, but they are especially evident in global outsourcing initiatives.

Clearly, we can say that enormously important that a strategy for value chain excellence identifies risks and that the change management plan appropriately mitigates those risks. Hence, huge impact on the players, value chain management plans have to include thorough risk analysis. Plan must include value chain risks, probability and impact assessments and risk mitigation plans. Executing this process at the beginning of value chain projects can avoid must pain later.

2. The Toughest part of change management

As we all know that people issues are tougher than technology issues. Value chain professionals tend to underestimate people issues. The value chain excellence only relay on simply excellent analysis and a good project plan. Many technically oriented people don’t gravitate naturally to the softer issues of communication planning and organizational buy-in. Yet failures in the areas are at the root of many initiatives failures. The availability of inventory or warehouse management system is also considered at this stage. The buy-in process needs to start at the beginning of a project, not at the end. This shows that, importance of cross-functional and communication within players of value chain.

2.1 Communicate with right people

The value chain plans tend to focus on the major challenges of making physical and process changes and don’t allocate enough time for communication. But even when communication takes place, it often misses the point.

2.2 Plans for Sustaining Change

Sustaining change is often more difficult than implementing it in the first place, especially with cross functional and cross players project plans required for value chain excellence. These plans should consist of training programs, with special focus across all functions involved when there is employee turnover. It should also include periodic audits of the process. And finally, it should have metrics very clearly posted so that problems are visible as soon as things start to turn off the track.

Management should require and support with plan, time and funds to sustain change after the initial implantation. Such plans often include a provision for refresher training of all users, even those in other functions and detailed documentation of cross-functional responsibilities in the new process. Due to the crush of daily demand and supply of the produce, value chain players tend to move to next initiatives before ensuring the process change made will be sustained.

Hence, managing value chain in global environment takes on a new dimension of complexity. Cultural differences must be fully included in the change management plan. The change management will take longer time in global and cross-cultural environments.

Conclusion

Driving economic profit and player's value through value chain excellence means focusing on the steps we have outlined in initial steps of the plan. Building on these steps means launching projects and completing them successfully.

Box.2. Action Steps in managing the value chain relationships, strategy decisions aimed at maximizing performance.

1. Deal with the root cause of value chain problem.
2. Make some Threshold level above that something is not unacceptable and manage resources scope closely.
3. Visibly and constantly articulate goals and benefits.
4. Supervise and build up a plan to mitigate value chain risks.
5. Ensure time to communicate properly.
6. Embrace the complexity of managing change in the global environment.

CHAPTER.6

Concept of Partnership

An important aspect of implementing value chain management is the formation of appropriate linkages between members of the value chain. While practitioners and academics have championed the value of partnerships for this purpose, the challenge is to find effective methods for developing the appropriate type of relationship. In an environment characterized by scarce resources, increased competition, higher customer expectations and faster rates of change, executives are turning to partnerships to strengthen value chain integration and provide sustainable competitive advantage. Partnering provides a way to leverage the unique skills and expertise of each partner and may also “lock-out” competitors.

Partnerships, however, are costly in terms of the time and effort required. Consequently, a firm can't and should not partner with every supplier, customer or third-party provider. It is important to ensure that scarce resources are dedicated only to that relationship which will truly benefit from a partnership. Yet, many organizations become involved in relationships that do not meet management expectations and or which end in failure. How can managers determine, in advance, if a potential relationship is one which will result in competitive advantage and is worthy of time and resources needed to fully develop into a partnership. Further, all partnerships are not the same. How does management know what type of partnership would provide the best pay-off ?.

The partnership model represents a systematic process for developing implementing and continuously improving corporate relationships. Without a foundation of effective relationships, efforts to manage the flow of materials and information across the value chain are likely to be unsuccessful. Partnership model provides a structured and repeatable process to effectively and efficiently build and maintain tailored business relationships that may become an asset for executives looking for competitive advantages.

3.1 Value chain in Practice

Most of the performances are measured by certain metrics in the process, these are nothing more than logistics measures that have an internal focus and do not capture how the firm drives value or profitability in the value chain. These measures may actually prove to be dysfunctional by attempting to optimize the firms performance at the expense of the other firms in the value chain, an approach that eventually decrease the value of the players in the value chain process.

It is generally believed that a well crafted system of value chain metrics like distribution using Just-in-Time and world class inventory management (RIRDC, 2001) can increase the chances for success by aligning processes across multiple firms, targeting the most profitable market segments and obtaining a competitive advantage through differentiated services and lower costs. In appropriate metrics, on the other hand, will result in failure to meet consumer / end user expectations, sub-optimization of departmental or company performance, missed opportunities to outperform the competition and conflict within the players.

Hence there is need to set an appropriate metrics to measure the change in the value chain. The translation of process improvements into supplier and customer profitability provides a method for developing metrics that identify opportunities for improved profitability and align objectives across all of the firms in the value chain. By maximizing profitability at each link, value chain performance migrates towards management's objectives and maximizes performance for the whole system.

Box.3. Why Relationships are vital with academic community, consultants and Commoners in Value chain.

- ◆ The term "relationships" covers a lot of ground in value chain management. There are strategic relationships, tactical relationships, transactional relationships, internal relationships, and possibly more. There are also relationships among members of the value chain community.
- ◆ Our study about value or supply chain universe can be seen as clustered around three "estates," roughly comparable to the social divisions. We might, without stretching too far, term them the First Estate—the academic community; the Second Estate—the consultants and software developers; and the Third Estate—the working practitioners (or the "commoners"), led then as now by the bourgeoisie of visible, leading edge advocates. There is also a kind of Fourth Estate (or the "press") in value chain management, but the trade press generally does not play the same watchdog role as its counterpart in the outside world.
- ◆ For the moment, it's important to realize that relationships among the value chain estates must be maintained for balance. Too much power and influence in any one camp and you risk undermining the effectiveness of value chain.
- ◆ Relationships among businesses and all levels of government—federal, state and local—are important as well. Governmental and regulatory bodies can provide restrictions and incentives, regulations and freedom, and roadblocks and opportunities for individual companies. They also provide venues for teaching and research, and they can help create the environments that incubate consultancies and technology development (Kenneth B. Ackerman and Art Van Bodegraven, 2007)

CHAPTER.7

Cost-effective valuation of Value Chains with Case study

Case study on

VALUE CHAIN MANAGEMENT OF SWEET ORANGES IN ANDHRA PRADESH

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India produces around 111.77 million MTs of vegetables and 57.73 million MTs of fruits, which accounts for nearly 11.90 per cent and 10.90 per cent of country's share in the world production of vegetables and fruits, respectively. While the India's share in the global market in vegetable and fruits stands at 1.70 per cent and 0.50 per cent, respectively. The emergence of modern value chains has helped in improving the linkages between the buyers and the poor farmers in the developing countries which have turned out to be more beneficial to the smallholders (Dries *et al.*, 2004; Minten *et al.*, 2007; Maertens and Swinnen, 2006; BIRTHAL *et al.*, 2007). India ranks sixth in the production of citrus fruit in the world. Other major citrus producing countries are Spain, USA, Israel, Morocco, South Africa, Japan, Brazil, Turkey and Cuba. It occupies third position after mango and banana in the production of fruits in India. It is of particular interest because of its high content of vitamin C and refreshing juice. Of the various types of citrus fruits grown in India, orange (mandarin or santra), sweet orange (mosambi, Malta or satgudi) and lime/lemon are of commercial importance. In India, citrus fruits are primarily grown in Maharashtra, Andhra Pradesh, Punjab, Karnataka, Uttaranchal, Bihar, Orissa, Assam and Gujarat. During 2001-02, India has produced about 46 lakh tonnes of citrus from a total area of about 5.6 lakh ha. Sweet orange is the major fruit crop grown on large scale in Nalgonda district in Andhra Pradesh. It has largest area under sweet orange producing around 16 lakh tonnes with an area of 1,24,684 ha (2009-10).

The present study was undertaken to understand the various marketing aspects and marketing channels used for sweet oranges in Nalgonda district and how this has helped the farmers to get higher returns to improve their standard of living.

The main objectives of the study are:

1. To study the technological aspects of production, marketing and institutional factors which influence farmers' income.
2. To examine the post-harvest practices and marketing channels of sweet orange.
3. To analyze the constraints in production and marketing of sweet oranges to identify best practices among farmers, middlemen and traders and markets for efficient functioning of marketing system.

METHODOLOGY

Sweet orange is the major fruit crop grown on large scale in Nalgonda district of Andhra Pradesh. All the mandals of Nalgonda district are under the cultivation of sweet oranges and among them the major sweet orange growing mandals are P.A.Pally, Kanagal, Peddavoora, Thipparthi, and Gurrampode only where the sweet orange areas are more than 50 per cent of the total cultivated. In view of its economic importance the supply chain system of sweet oranges through different market channels, the investigation was important to estimate market costs and market margins help the active players involved in different market channels. The villages in the five selected mandals were arranged in the descending order of the area under sweet orange. Three villages viz., Thirumalagiri, Angadipeta, and Dugyala in Pedda Adiserla Pally mandal, three villages viz., Gauraram, Ammannagudam and Erugantipalli in Kanagal mandal, three villages viz., Macharam, Thimmapuram, and Rayadugu in Anumula mandal and three villages viz., Atmapuram, Peruwala, and Kothapalli in Gurrampode mandal, other three villages viz., Kothagudam, Thippalammagudam and Tammidipalli in Thipparthi mandal, three villages viz., with largest area under sweet orange were purposively selected.

a) Sample size:

Random sampling technique was used to select district, market functionaries, markets and farmers. The farmers for this study were divided into two categories on the basis of land size they are holding (i.e.) if less than three hectares are considered as small farmers and more than three hectares as large farmers. From each category 60 farmers were randomly selected making the total sample 120. Thus one district, five mandals, fifteen villages; one hundred and twenty farmers formed the sample size for the present study.

b) Collection of data:

Primary data was collected from the selected sweet orange growers, commission agents, wholesalers and retailers through survey method with the help of pre-tested schedules specially designed for the purpose. The data regarding the arrival and prices of the regulated markets along with other related information were collected from the market committee records. The data regarding the area, production, productivity of sweet orange, processing units, cold storages, and Agri-Export Zones (AEZ's) were collected from Department of Horticulture, Government of A.P.

C) Analytical tools and techniques:

C.i) Tabular analysis: This was done by working out simple averages, and percentages. Discounting techniques were used to obtain Net Present Value, Benefit-Cost Ratio, and Internal Rate of Returns. Simple averages were used to estimate cost of cultivation of sweet oranges, average quantity sold, marketing costs, profit margin, intermediaries and under different marketing channels. Appropriate percentages were worked out for the purpose of comparison. The problems associated with Sweet oranges marketing were also considered.

C.ii) Net present value: The NPV method is a process of calculating the present value of cash flows (in flows and out flows) of an investment proposal, using the cost of capital as the appropriate discounting rate and finding out the net present worth by subtracting the present value of cash out flows from the present value of cash flows.

$$NPV = \sum_{n=1}^n \frac{B_n - C_n}{(1+i)^n}$$

B_n = Benefits from each year C_n = Cost in each year

n = Number of years i = Discounted rate

C.iii) Benefit cost ratio: The common procedure of selecting the project is to choose the projects having the B-C ratio of more than one where cash inflows and outflows are discounted at opportunity cost capital. This ratio was arrived by using the following formula.

$$BCR = \frac{\sum_{n=1}^n \frac{B_n}{(1+i)^n}}{\sum_{n=1}^n \frac{C_n}{(1+i)^n}}$$

B_n = Gross benefit in nth year

C_n = Cost in nth year

n = 1, 2, 3 n

i = discount rate

C.iv) Multiple linear regression models

Multiple linear regression analysis was carried out for identifying various factors influencing profit margins under different channels. The model included eleven variables, one dependent variable and ten explanatory variables. The following linear model was used for profit margins under different marketing channels.

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + u_i.$$

Specification of variables are

Profit margin (Y): profit margin was considered per tonne of sweet orange sale.

Education status of the farmers (X₁): The education status of the farmer considered as illiterates (1), primary school education (2), secondary school education (3) and college education (4).

Marketing channel (X₂): Four existing marketing channels were considered i.e. Channel I, Channel II, Channel III and Channel IV, respectively.

Age of the orchard (X₃): Four categories of orchard age was considered as less than 10 years (1), 10- 15 years (2), 16- 20 years (3) and 21- 25 years (4), respectively.

Area of the orchard (X₄): Orchard area was considered as less than three (1) and more than three hectares (2), respectively

Total quantity sold (X₅): The quantity sold by the farmer-producer during the year 2009/10.

Sale in September - November (X₆): The quantity sold by the farmer – producer during the months of September to November was considered as variable.

Size of the family (X₇): Size of the family includes the members of family both adults and children with less than 4 (1), 4 -6 (2), 7-9 (3) and 10 and above (4), respectively.

Total marketing cost (X₈): Total marketing costs were considered as the costs incurred during the transfer of produce from farmer- producer to ultimate consumer per tone of sweet oranges.

Total fixed costs (X₉): The total fixed costs incurred during the year 2010 -11 for the farmer – producer on per tone of sweet orange production.

Total variable cost (X₁₀): The costs incurred during the year 2010 -11 by the farmer – producer per on tone of sweet oranges production.

Error term (U_i): Error term is the difference between the actual value of the independent variable and the value predicted by the regression equation.

Here b_0 is the intercept term, giving average effect of Y when all the included variables were absent. The stochastic term u_i is useful to reflect intrinsic randomness in the data. $b_1, b_2, \dots, b_{10}$ are partial regression coefficients. The meaning of partial regression coefficient is that b_i measures change in the mean value of Y per unit change in x_i , holding other variables constant.

C.v) Adjusted R^2

It is good practice to use R^2 (adjusted R^2) rather than R^2 , because R^2 tends to give an overly optimistic picture of the fit of the regression, particularly when the number of explanatory variables is not very small compared with the number of observations. Hence the present study also adjusted R^2 values were calculated by utilizing the formula

$$\bar{R}^2 = 1 - R^2 (N-1/N-K)$$

Where

R^2 = original coefficient of multiple determination

N = sample size

C.vi) Economics of Value Addition (VA)

The difference between consumer price for raw produce and same quantity of processed produce is the value addition.

VA = Price of processed produce – Raw produce

RESULTS AND DISCUSSION

The primary data was collected with the help of questionnaires and the secondary data was collected from the Department of Horticulture, Andhra Pradesh. The production of sweet oranges in Nalgonda district was 16,83,234 tonnes in the year 2009-10. The Pre-harvest contractor channel is the most prominent channel in Nalgonda district. Nearly 70 per cent of the produce is being sold through this channel. Channel I (Producer- Pre-harvest contractor – Distant wholesaler cum commission agent - Retailer- Consumer) and channel II (Producer – Pre-harvest contractor - Wholesaler cum Commission agent

– Distant wholesaler – Processing unit - Retailer - Consumer) both are the pre-harvest contractor channels. In channel I the produce is directly sold at distant markets like Nagpur fruit market (27%) with major percentage of total produce followed by Delhi (13 %), Mumbai (9 %) and Pune (6 %), respectively. In channel II and III the pre-harvest contractor and farmer-producer do sell their produce directly at Gaddiannaram, Hyderabad, regulated market which accounts for 36 per cent of the total production. In this channel there is no involvement of pre harvest contractors, wholesalers and commission agents and through this channel only 11 per cent of produce is being transacted (Table:1 and figure.5)

Table1: Percentage sales of sweet oranges in different markets in Nalgonda

S.No	Product sales in different markets	Percentage
1	Local market	11%
2	Mumbai fruit market	9%
3	Pune fruit market	6%
4	Nagpur fruit market	27%
5	Delhi fruit market	13%
6	Gaddiannara fruit market Hyderabad	36%
	Total	100%

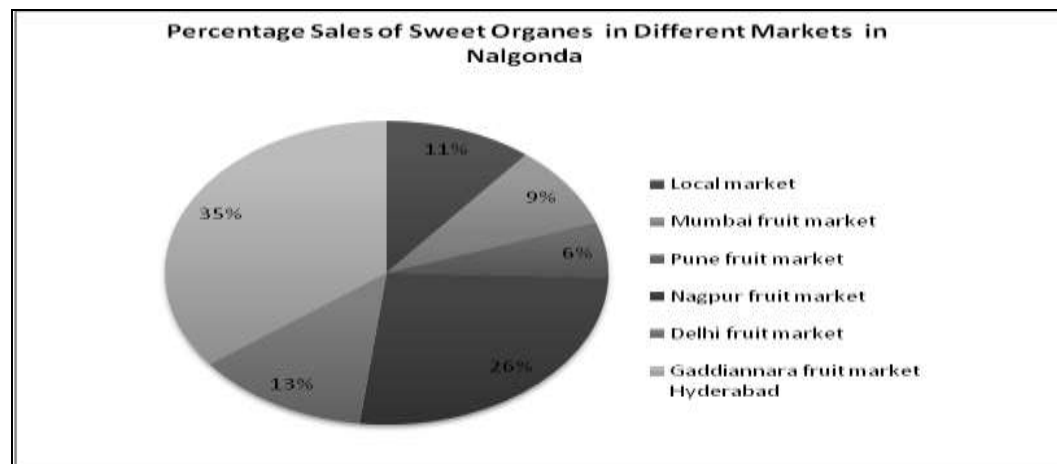


Fig.5. percentage sales of sweet oranges in different markets in Nalgonda

i) Measures of farm income of sweet orange producers.

The costs and returns indicate the success or failure of the farm business. An important element in the farm business organization relates the manner in which the resources are allocated. A measuring stick is necessary to provide standards for appraising the use of various resources. Accordingly various income measures viz., gross income, net income, farm business income, family labour income and farm investment income were calculated.

Gross income is the total revenue earned by the farmer producer from the sale of the produce. The estimated gross income from one hectare of sweet orange orchard during the entire economic life period (25 years) was Rs.16, 20,896 and Rs.16, 05, 176 for small and large farmers, respectively (Table:2). Although gross income is a good measure to gauge the productivity and efficiency of the farm, but it alone does not reveal the success of a farm business. Hence, net income of the farmer was analyzed. Higher the net income, more success is the farm business. The small and large sweet orange producer farmers realized a net income of Rs.4,88,538 and Rs.4,89,086 per hectare respectively. The farm business income realization per hectare on basis was Rs.1,048,573 and Rs.1,047,122, respectively for small and large farmers respectively. The family labour income earnings per hectare was Rs.5,53,322 and Rs. 5,48,176 for large and small farmers. The farm investment income realization on per hectare basis was Rs.9,53,634 and Rs.9,57,524 for small and large farmers, respectively. The income realization in orchard growers in Nalgonda district of Andhra Pradesh is not related to category of farmers as it is evident from the data.

Table2: Farm Income measures of sweet orange producers on per hectare basis (Rs/ha)

S.No	Particulars	Small	Large
1.	Gross income	16,20,896	16,05,548
2.	Farm business income	1,048,573	1,047,122
3.	Family labour income	5,53,322	5,48,176
4.	Net income	4,88,538	4,89,086
5.	Farm investment income	9,53,634	9,57,524

ii) Economic feasibility of Sweet orange orchard:

The grower who is about to setup the orchard should focus on certain aspects such as length of the period a particular enterprise bears fruits plays a key role in the selection of indicators examines the economic feasibility of the enterprise. In the present study the costs and returns were discounted at 12, 18 and 24 per cent rate of interest to estimate the net present value of future returns. (Table3)

Table3: Estimates of economic viability of sweet orange orchard.

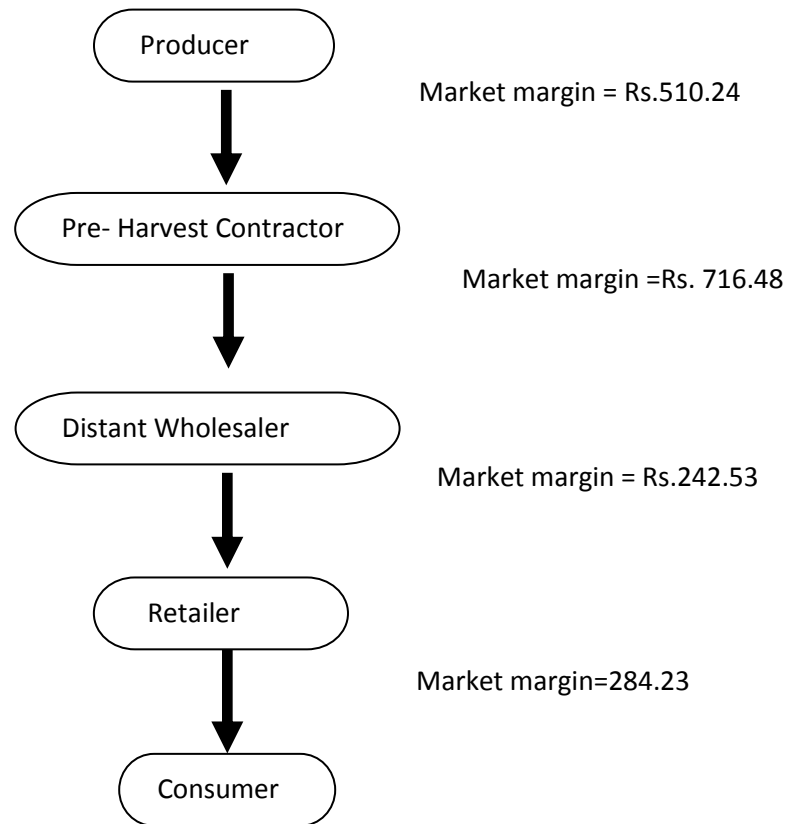
Particulars	Discount rates		
	12	18	24
Net Present Worth (Rs.)	2,71,934.62	91,582.50	52,109.67
Benefit Cost Ratio	2.32	1.84	1.65
Internal Rate of Returns (%)	42.28		

iii) Marketing costs and channels involved in value chain of sweet oranges:

The channel where in the end product (i.e) the produce reaches the consumer plays a very important key role. Hence it is very much essential to know the kind of value chain adopted for sweet oranges in Nalgonda district. Various marketing channels patterns where studied it has been observed that the pre-harvest contractors were preferred in this area as they are more accessible to the producers. Besides high transportation cost involved in taking the produce to the market, wide price fluctuations at the time of harvesting and risk and uncertainty involved in sweet orange production and marketing were the important factors causing the farmers to sell the sweet oranges to pre harvest contractors.

There are four distinct channels identified in the sweet orange marketing chain in Nalgonda district of Andhra Pradesh. Table: 4

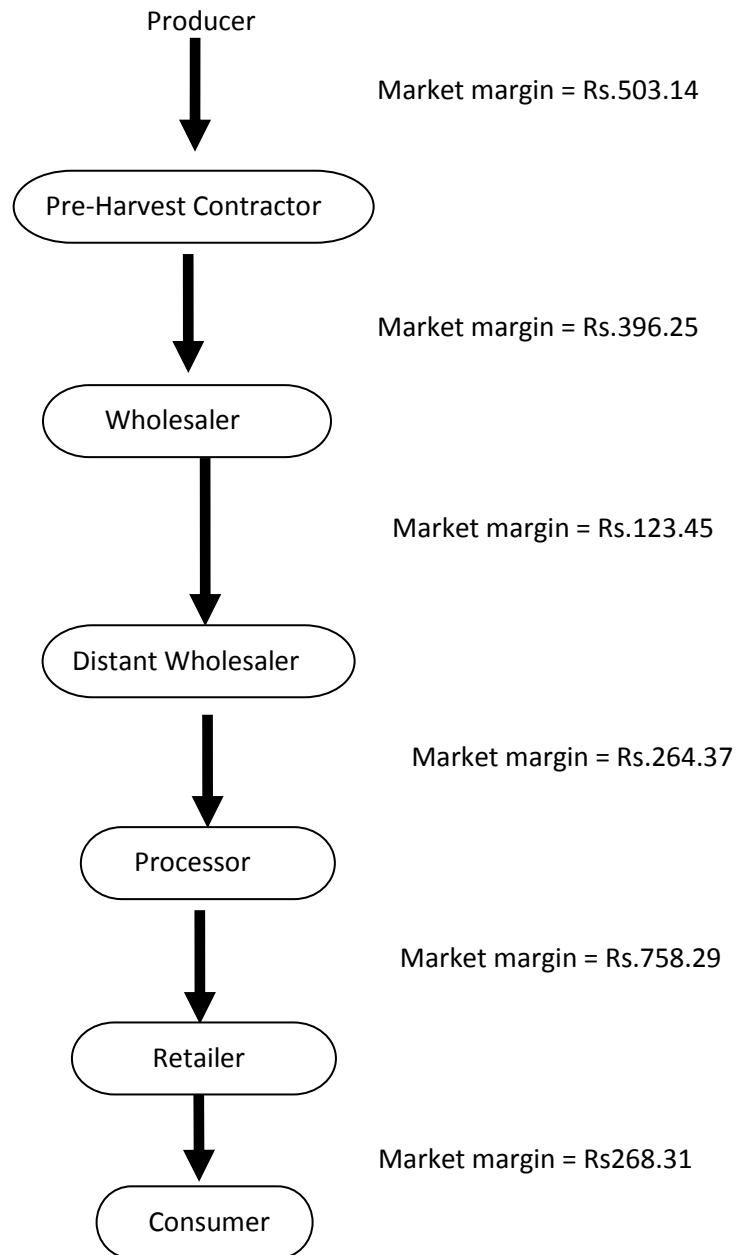
Channel-I



Note: The data pertains to per quintal of sweet oranges.

The growers sell the standing crop to the pre harvest contractor who bears the cost of harvesting, packing and transportation. The producer did not incur any expenditure towards marketing. The payments for the orchards are based on the performance of the orchard yields over the previous years, size and quality of the fruits produced, age of the orchards and the prices in the market. The pre harvest contractors market the fruits in distant markets like Nagpur, Mumbai, Pune, Delhi, Agra, Ahmedabad and Jaipur etc, through commission agents.

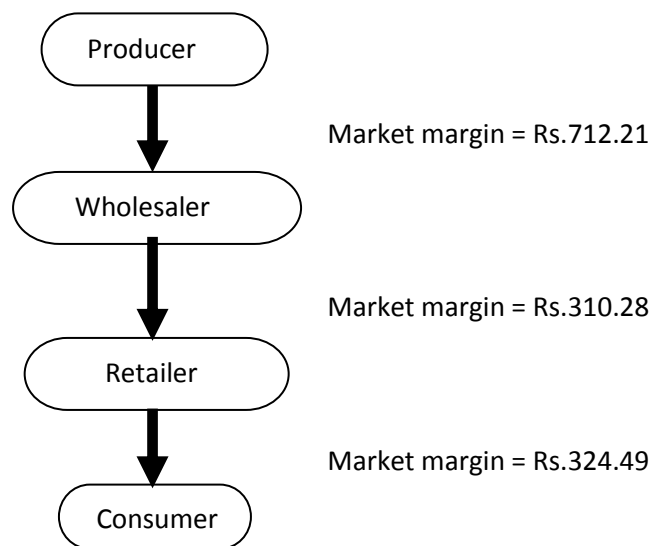
Channel II



Note: The data pertains to per quintal of sweet oranges

This channel is similar to channel - I. Here the pre harvest contractors market the fruits in local markets like Gaddiannaram fruit market. In this channel also the commission agent himself acts as a wholesaler and undertakes marketing of sweet oranges. Here the distant wholesalers purchase the produce from wholesalers and sell it to processing unit and from processing unit the processed products after packing are sold to retailers and from retailers to consumers. In this channel the number of intermediaries involved was high and due to this the producer's share in consumer's rupee was less compared to other channels.

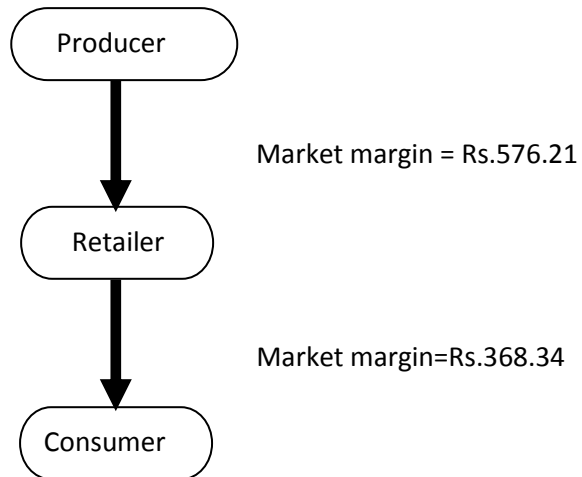
Channel III



Note: The data pertains to per quintal of sweet oranges

In this channel the producer sells his produce of sweet oranges at Gaddiannaram fruit market. In this channel also the commission agent himself acts as a wholesaler and undertakes marketing of sweet oranges. The wholesalers market the fruits to retailers and from retailers to consumers. In this channel there is no involvement of pre harvest contractor and the costs of harvesting, packing and transportation incurred by the producer. In this channel risk bearing was high to the producer compared to channel I and channel II, at the same time the producer's share in consumer's rupee was also high.

Channel IV



Note: The data pertains to per quintal of sweet oranges

In this channel there is no involvement of intermediaries like pre harvest contractor, wholesaler and commission agent. Here the produce is sold in very small quantities (2,258 quintals only), but the profit in this channel is very high when compared to the other three channels.

iv) Table 4: Marketing costs for one quintal of sweet orange in different channels

(Amount in Rupees)

S. No	Name of the functionary	Channels			
		Channel-I	Channel-II	Channel-III	Channel-IV
1	Producer				
	Labour charges (harvesting, loading and unloading)	0 (0.00)	0 (0.00)	140.84(28.83)	0(0.00)
	Transportation	0 (0.00)	0 (0.00)	67.61(13.81)	0(0.00)
	Packing & weighing	0 (0.00)	0 (0.00)	4.50(1.65)	0(0.00)
	Spoilage losses	0 (0.00)	0 (0.00)	3.75(0.76)	0(0.00)
	Taxes etc	0 (0.00)	0 (0.00)	12.87(2.63)	0(0.00)
	Commission agent charges	0 (0.00)	0 (0.00)	42.26(8.65)	0(0.00)
	Total	0 (0.00)	0 (0.00)	271.84(55.64)	0(0.00)
2	Pre harvest contractor				
	Labour charges (,harvesting, loading & unloading)	150.67(13.84)	148.26(10.87)	0(0.00)	0(0.00)
	Transportation	400.83(36.53)	82.90(6.08)	0(0.00)	0(0.00)
	Packing & weighing	4.82(0.44)	3.75(0.27)	0(0.00)	0(0.00)
	Spoilage losses	2.56(0.23)	3.85(0.28)	0(0.00)	0(0.00)
	Taxes etc	19.20(1.76)	18.25(1.33)	0(0.00)	0(0.00)
	Commission agent charges	54.27(4.98)	56.90(4.17)	0(0.00)	0(0.00)
	Total	632.35(58.11)	313.91(23.02)	0(0.00)	0(0.00)
3	Wholesaler	Channel-I	Channel-II	Channel-III	Channel-IV
	Labour charges	0(0.00)	48.94(3.58)	34.64(7.09)	0(0.00)
	Transportation	0(0.00)	0 (0.00)	0.00(0.00)	0(0.00)
	Packing & weighing	0(0.00)	4.75(0.34)	3.18(0.65)	0(0.00)

	Spoilage losses	0(0.00)	2.55(0.16)	2.25(0.46)	0(0.00)
	Taxes etc	0(0.00)	12.23(0.89)	5.74(1.17)	0(0.00)
	Total	0(0.00)	68.47(5.02)	45.81(9.37)	0(0.00)
4	Distant wholesaler				
	Labour charges	58.73(5.39)	44.15(3.23)	0(0.00)	0(0.00)
	Transportation	64.56(5.93)	345.25(25.32)	0(0.00)	0(0.00)
	Packing & weighing	26.54(2.43)	3.55(0.26)	0(0.00)	0(0.00)
	Spoilage losses	1.63(0.14)	2.68(0.19)	0(0.00)	0(0.00)
	Taxes etc	28.78(2.64)	17.34(1.27)	0(0.00)	0(0.00)
	Total	180.24(16.56)	412.97(30.29)	0(0.00)	0(0.00)
5	Processor				
	Labour charges	0(0.00)	225.45(16.53)	0(0.00)	0(0.00)
	Transportation	0(0.00)	92.40(6.77)	0(0.00)	0(0.00)
	Processing& Packing	0(0.00)	265.55(19.47)	0(0.00)	0(0.00)
	Spoilage losses	0(0.00)	23.45(1.72)	0(0.00)	0(0.00)
	Taxes etc	0(0.00)	75.34(5.52)	0 (0.00)	0(0.00)
	Total	0(0.00)	682.21(50.04)	0(0.00)	0(0.00)
6	Retailer				
	Labour charges	82.36(7.56)	80.52(5.88)	68.47(14.01)	48.75(40.01)
	Transportation	48.60(4.46)	48.65(3.56)	54.79(11.21)	38.85(31.88)
	Packing &Marketing	52.73(4.84)	43.35(3.17)	28.89(5.91)	24.35(19.98)
	Spoilage losses	12.35(1.13)	3.53(0.25)	1.86(0.38)	2.90(2.38)
	Taxes etc	26.76(2.45)	23.56(1.72)	16.82(3.44)	7.04(5.77)
	Total	275.53(25.32)	199.61(14.64)	170.83(34.97)	121.83(100.00)
	Total marketing costs (1+2_+3+4+5+6)	1088.12(100.00)	1363.25(100.00)	488.47(100.00)	121.83(100.00)

Note: Figures in the parentheses indicate percentages to the total marketing costs in each channel.

v) Value Addition: The difference between consumer price for raw produce and for the same quantity of processed produce in the market is the value addition, Table:5

Table5: Value additions in sweet orange under different channels (Rs/q)

S.no.	Particulars	Channel I	Channel II	Value addition
1.	Total marketing costs	938.69	1575.85	-
2.	Total profit margins	1306.27	1845.14	-
3.	Consumer's price	2738.47	3916.64	1178.17

The total marketing costs was high in channel II compared to channel I due to involvement of important functionaries i.e., processor in channel II. (Table 4) At the same time the total profit margin is also high in channel II. Total marketing costs in channel I and channel II were Rs.938.69 and Rs.1575.85, respectively and total profit margins were Rs.1306.27 and Rs.1845.14, respectively. The value addition in channel II is Rs.1178.17 due to involvement of processor.

vi) Production costs incurred by farmers under different channels in Nalgonda district:

Farmers incurred various costs in the production of sweet orange. The average total fixed cost was the highest among farmers that used channel –IV because in this channel size of the land holdings are small and age of the orchard is also relatively less, while the lowest and less cost was for those farmers who were marketing their products through pre harvest contractor channel i.e. channel –II because in this channel the size of land holdings of the farmers are large compared to other channels. Table:6 and fig:6.

Table 6: Production costs of sweet oranges under different marketing channels

Market channel	Cost of production and marketing (Rs/q)			
	ATFC	ATVC	ATC	AMC
Channel I	262.28 (53.64)	226.68 (46.35)	488.96 (100.00)	1088.14
Channel II	201.98 (55.66)	160.87 (44.33)	362.85 (100.00)	1384.45
Channel III	198.78 (52.94)	176.69 (47.05)	375.47 (100.00)	562.25
Channel IV	506.64 (54.40)	424.53 (45.60)	931.17 (100.00)	120.15

Note: Figures in the parentheses indicate percentages to the average total costs in each channel.

Note: ATFC= Average total fixed cost, ATVC= Average total variable costs, ATC= Average total cost, AMC= average marketing cost per quintal.

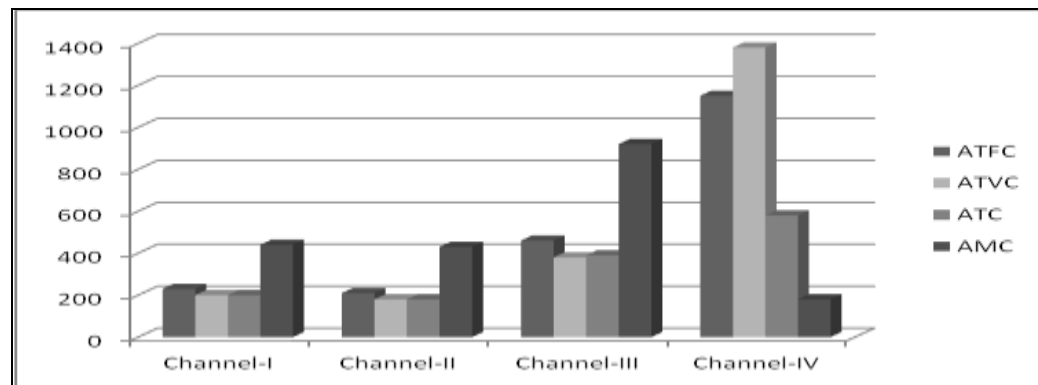


Fig.6: Show the variation in cost of production and marketing of sweet oranges under different marketing channels (Rs/q)

CONCLUSION

The predominant supply chains identified in the sale of sweet oranges were of four models. Channel-I: Producer-pre harvest contractor- Distant wholesaler cum Commission agent - Retailer- Consumer. Channel-II: Producer-pre harvest contractor-wholesaler cum commission agent - Distant wholesaler – Processing unit - Retailer-

Consumer. Channel-III: Producer - wholesaler cum Commission agent - Retailer-Consumer. Channel-IV: Producer- Local retailer- Consumer

The most prevalent marketing channel in sweet orange marketing was channel-I and channel- II through which 79.48 per cent of farmers disposed the sweet oranges and the produce sold through these channels were about 87.52 per cent of the total produce marketed in different channels. In channel-III nearly 12.50 per cent of farmers disposed the sweet oranges and the produce sold through this channel was about 10.00 per cent. Channel IV is least preferred by the farmers, i.e. only 7.50 per cent of the sample farmers disposed their sweet oranges and it accounted for 2.42 per cent of total produce.

The main problem encountered by the farmers of Nalgonda district in marketing of sweet oranges are lack of promptness in payment by the traders, high transportation costs during peak harvesting season, low share of producer in consumer rupee and high costs towards the commission agent. The Government should take up certain measures to see that the producers are paid on time and better transportation facilities are being provided so that the end product reaches the consumer at the right time maintaining its quality. The producer can be encouraged to take up the contract farming with the private companies where in he is assured of getting the price even if the market price is quite low and can avoid the middle men and the commission agents

POLICY IMPLICATIONS

1. The roles played by the different traders with the farmers in production and marketing was performed to fewer extent in general and specially in traditional formats which was essential in any market efficiently in accordance with the demand of the domestic market in an organised format in general and specially in sweet oranges marketing. Therefore, organized contracting farming activities in the sweet oranges production and marketing can be encouraged by providing more incentives to the co-operative organisations and companies.
2. As the number of intermediaries gets reduced with the organization of growers will lead to more and more contract cultivation and when provided with cold chain/warehouse facilities will help the farmers with better bargaining power. It is beneficial to both for consumers and marketing system to operate effectively.

-
-
3. Price spread was lowest in channel IV, as compared to other channels of the sweet orange marketing. Hence, no involvement of intermediaries like pre harvest contractor, wholesaler and commission agent. This gives an opportunity to create a network of farmers, cooperatives and modern formats in marketing of fruits in general and particularly in high production areas of sweet oranges with urban market centres on one hand and market information mechanism can be established on the other.
 4. The main limitation encountered by farmers of Nalgonda district in marketing of sweet oranges are lack of promptness in payment by the traders, high transportation costs during peak harvesting season, low share of producers in consumer's rupee and high costs towards the commission agents. Hence the government should take up certain corrective measures to see that the producers are paid on time and better transportation facilities are being provided. So that, the end product reaches the consumer at the right time maintaining its quality.
 5. The study area has adjoining Hyderabad market which has created the ever expanding for value-market oriented agribusiness activities such as fruits, flowers, dairy, poultry, and vegetables. It is therefore needed to harness this market as far as possible by developing infrastructure facilities and implementing oriented agricultural activities.

Box.4. Highlights of the Case Study

- ◆ Sweet orange is the major fruit crop grown on large scale in Nalgonda district in Andhra Pradesh. It has largest area under sweet orange producing around 16 lakh tonnes with an area of 1,24,684 ha (2009-10).
- ◆ The Pre-harvest contractor channel is the most prominent channel in Nalgonda district. Nearly 70 per cent of the produce is being sold through this channel. Channel I (Producer- Pre-harvest contractor – Distant wholesaler cum commission agent - Retailer- Consumer) and channel II (Producer – Pre-harvest contractor - Wholesaler cum Commission agent – Distant wholesaler – Processing unit - Retailer - Consumer) both are the pre-harvest contractor channels.
- ◆ The average total fixed cost was the highest among farmers that used channel –IV because in this channel size of the land holdings are small and age of the orchard is also relatively less when compared to other channels in market.

CHAPTER.8

Role of Government Policy and Its Impacts on Value Chain Players

Inclusively many developing countries are eyewitness an elemental shift in agriculture from subsistence farming to a more market-oriented approach. Growing incomes, rising urbanization and transform in consumer preferences are motivating demand for high-value commodities and niche markets for specialty products. Thus, connecting the farmers to marketplace by educating the efficiency of value chains has turn out to be significant in influencing the latent of agriculture in benefiting small-scale producers. Further, agriculture and food companies are constantly penetrating for new product and market opportunity but many require resources that are beyond the potential of a single organization in this situation role of governmental plays a vital role in development and promotion of value chain in agriculture system as a whole.

The agro-food sector has transformed over the time, which requires a better understanding of the whole set of transactions within each value chain and that of the agricultural sector within which it operates. Integrated chains are able to do this most successfully. This information is imperative for making financial decisions. Regardless of the revolution in agriculture and agribusiness, the distinctive propose for financial products and services for agricultural and rural production has been underprovided and not mainly innovative; Conventional thinking is that the agricultural sector is too costly and risky for lending, the stretch of financial intermediaries are still be deficient in rural areas and producers, especially smallholders, are still unjustified. In addition, major banks in the sector such as Rabobank and Banorte, large financial institutions in the Netherlands and Mexico respectively, both express the view that agricultural credit is profitable if producers are well integrated into a viable value chain (Shwedel, 2007; Martínez, 2006).

Various organizations have instigated an evolution in the direction of business models of closer supplier/buyer cooperation to capture these opportunities. These ‘Value Chain Initiatives’ are projected to improve value to contribute firms within a

value chain by working towards a common goal of providing customer satisfaction. Hence, there is need by governments and affiliated funding agencies to support and facilitate the value chains process as vehicles for civilizing the competitiveness of a vital economic sector and as assets by which farmers can capture more value for their products. However, value chains are multifaceted undertakings and whilst government funding can help support these initiatives there are risks that reduces the availability of the funding may encourage the creation of new value chain partnerships that are eventually hard to defend and devoid of the financial support.

Role of Government and Its Impacts on Players in Value Chain

Taking advantage of government engagement and collaboration in value chain development process can mean more sustainable and positive impacts in the business-enabling environment for small, micro, and informal enterprises, regardless of country or sector. This will not only pick up but also contribute to superior practices in value chain development and lead to better targeted and more effective collaboration between the government, overall development initiatives and the private sector organizations that contribute to the market system. Hence to make this possible, government should focus to regulate and enforcement for underneath value chain finance, sorting public and private issue, development of agriculture marketing and agriculture markets, rising role of private players, sponsorship of Contract Farming, upgrade the facilities at the APMC's regulated market yards and also encourage the formation of farmer co-operatives and associations like Ruthu Bazars, in every part of the country, execution of minimum tax on inter-state movement of agriculture produce and transfer of technology through improving the quality of agriculture extension services. The details of these can be explained as mentioned below

1.The government ought to spread out the policy environment for agricultural and rural finance to envelop the emerging financial products and technologies and also providing assistant in assess and improve policies which are aimed to enhancing warehousing services and warehouse receipt financing. The government is supposed to prioritize increased expenditures on research and rural infrastructure in the agricultural sector. This will augment and improve financial sector policies for economic and exchange rate stability (Calvin Miller and Linda Jones, 2010). Further, improve the environment for

private financial investment, including tax policies and concessions when appropriate to strengthen profitable farming systems. Since the small holders are very sensitive to price signal based on their quality produce, the government should focus on equality issue related to smallholders' access to markets. Further, impose transparency and fair treatment of all players in the value chain. This will build capacity for value chain patrons to meet standards and regulations.

2. Directive and enforcement are both a community and personal issue, In many food sectors such as fruits and vegetables, private companies and their industry associations impose regulations which are much stricter than governmental ones, either to meet international or supermarket requirements or to maintain a quality standard. This is possible only if with mutual interest among partners in the chain and to maintain good working relations for the future. Hence government should focus on these and to enforce the regulations better than the private companies in future.

3. The role of government in development of agriculture and its marketing and markets is very central. The contract farming and authorization to farmers to sell their produce in the free markets is given recently and still, all states have not put into practice the same. The traditional farm to market association in the agriculture value chain are more dominated by multiple layers of brokers and intermediates, which have grounds for inefficiency in the movement of agriculture causing high inflation and post harvest losses. Hence, the farmer should be at the essential focal point of the agriculture value chain, he suffers the most and gets lower profits/price for its own agriculture produce, while the middleman enjoys the highest margins. According to Minten, (2011), the direct role of government in marketing of grain output has increased from 12% in 1970s to 24% in early 2000s. The government role in food marketing out of overall food economy is stagnant to nearly 7% for the period of 1970's to early 2000's. The government on the other hand, doesn't have much controlled role in food marketing, but it can greatly influence the market by playing with minimum support prices and parastatal procurement.

4. In agriculture value chain, the participation of private players, structured retail and food processing industry due to mounting middle class, the demand of for processed food and properly graded, packed and ready to eat food items has also increased and

more consumers demand for it. Hence, there is need by the government to set up a sequence of reforms to promote the participation of private sector in the agriculture value chain, especially, in the expansion of market infrastructure, construction of warehouses and transportation.

5. The government plays an vital role in promoting of Contract Farming, the contract farming should not be an exchange platform for purchasing from farmer at a pre-determined price but it should act as essential component of vertical integration in the agriculture chain. This farming is also improving the socio-economic status of the farmers therefore it is gaining more importance in present day of business in agriculture. Hence, government should focus on contract farming to encourage for longer duration where the companies can provide financial benefits for purchasing inputs and share the right information to obtain better yield. All the contract farming agreements should be registered with proper law with efficient mechanism should be in practice.

6. At present, the situation of APMC's regulated market yards are not good, hence upgrade facilities are must, greater part of the APMC markets don't have any cold storage facility and the godown storage facility also many a times is inadequate. Consequently, the government should support and attract private sector to spend in up gradation of APMC markets under PPP model and facility of viability gap funding can be initiated by the government. Further, the government should facilitate the competence building of APMC at regular intervals for its effective functioning. The government can also look to promote the establishment of private markets maintained and operated by the private sector for marketing of horticulture commodities. The setting up of terminal markets for horticulture commodities is one of the good quality steps in this path. Setting up of private agriculture markets will definitely give more options to farmers to sell their produce which will reduce the monopoly of brokers in the whole agriculture marketing system and value chain. Hence, there is burning need that legislative administration should now facilitate the development of new agriculture value chain by the private sector which reduces the role of middlemen and remove accessible financial inefficiencies.

7. The government should make an attempt to minimize the taxes levied on inter-state movement of agriculture produce. A new scheme can be introduce for this permit which

can reduce the inspection time of the vehicle shipping agriculture produce. The post-harvest losses can be reduced significantly during transportation and plentiful handling. All the taxes and duties can be collected at single point to save the transit time while moving through various inter-state tax collection centers. But it needs to be understood that the various hurdles in the movement of agriculture commodities between different states are another reason for high inflation in horticulture commodities which needs to be addressed. The best example is rise of onion price recently due to lack of transport of onions from Maharashtra.

8. The negotiation power of small farmers especially to get the higher price for their produce is only possible through the formation of farmer co-operatives and associations. These types of associations like Ruthu Bazars in Andhra Pradesh, beneficial to both farmer and government by brokers to save the transactions time which will also control food inflation to desired levels respectively. The organization of such category of system will also generate local employment and encourage non-farm wealth.

9. The excellence of agriculture extension services also plays a decisive role in agriculture marketing in transferring the technology to the farming community. The employ of Information and Communication Technology (ICT) in providing critical information about prices in various markets, weather forecast and prices of inputs can greatly help the farmers to take the informed decisions related to farming like E-chouapl and Reuters Market Light (RML) are successful in this field. The company provides critical information related to markets and prices in eight different languages. The farmers using RML services are found to have 5-25% increment in their incomes as claimed by the company. Hence, overall government regulation should favors for the all players in the value chain process for developing an effective market chain with justifying the proper price for right farmer's produce.

**Box. 5. Government Plays Vital Role in Agriculture Development Through
Appropriate Regulations**

- ❖ Dual role of the government. It is essential to make sure that, the government is aware of, and responsive to, the difference between its dual role as a “facilitator” of development and its function as an “actor” supporting the market system for particular sectors. As a facilitator, the government coordinates the growth of a particular sector through regular engagement with market actors, following the sector plan. As an actor, it focuses on providing services, such as regulatory environment, tax collection, legal frameworks, and so on. Currently, in many cases, government activities are disproportionately focused upon multiple actor roles, rather than as an overall facilitator of development. For value chain development to be successful, the government must provide more leadership as a facilitator and support development (Rajiv Pradhan *et al* 2012).
- ❖ Government as market actor. Ensuring that each actor in a market system understands its most effective role for supporting a certain product or service is crucial. Governments of developing countries, as representatives of the public sector and providers of market oversight and regulation, less readily see themselves as market actors, to the extent of engaging with the private sector in

CHAPTER.9

BARRIERS TO ENTRY IN VALUE CHAIN PROCESS

The key function of any market is to determine the price of the “lot” at which the product should move from producer to seller. This process goes on continually at all times and places between buyers and sellers. The value chain process is affected by the price determination, either directly or indirectly, these forces are tangible like quantity at a particular point of time in the market or heavy rainfall or they may be intangible like announcement of any particular government policy. All these factors influence price determination by affecting either the demand behavior of buyers or the supply behavior of sellers.

The significant aim of a value chain is to produce value added products or services for a market, by transforming resources and by the use of infrastructures – within the opportunities and constraints of its institutional environment. Therefore, barrier for value chain development are in our view related to market access (local, regional, international) and market orientation available resources and physical infrastructures and institutions for regulative, cognitive and normative functions. The present topic can be studied under 2 broad sub-heading

1. Market requirements related to Demand side of the Agriculture produce
2. Actual Production Systems related to Supply side of the Agriculture produce

1. Market requirements related to Demand Side of the Agriculture produce

1.1 Demand Pattern

The demand for various products, especially in terms of form and quality, keeps on changing because of changes in incomes, the pattern of distribution among consumers and changes in tastes and habits. The demand for individual farm products is also affected by the availability of substitutes. Food grains are the basic items of necessity and there are no substitutes for them as a group. However, within the group, one

commodity may be substituted for another. The market arrangement should be re-oriented to keep it in harmony with the changes in demand. A study conducted by Bekele Shiferaw et al (2011) at CIMMYT, stated that, the rapidly changing demand pattern for maize in Asia has opened new and untapped opportunities for agricultural transformation and income growth for poverty reduction in the region. Thus we need an integrated approach for technology, markets and policy which motivate growth in production to meet the rising demand and changing demand patterns while also expanding market opportunities for resource-poor farmers to access and benefit from budding markets.

1.2 Access to market information

Market access is reliant on technological capabilities of producers, available infrastructures, bargaining power and market knowledge. Good information on seasonal price variations and changes in prices over the years can be used to plan when produce should be marketed. Market orientation and market knowledge are conditional to market access. In this section we focus on market orientation and market knowledge. Grunert et al. (2005) define market orientation of a value chain as “chain members’ generation of intelligence pertaining to current and future end-user needs, dissemination of this intelligence across chain members and chain wide responsiveness to it”.

Diversified nature of market, leads to market-oriented activities which are expected to take place by upstream parties in the chain. The more knowledge farmers have about price change and past profitability of enterprises, the better their position when they plan for the future.

Hence, the participate should have proper market information in high value adding value chains, various parties in the chain up to the primary producer should have knowledge of and be willing to adjust to demands in the value chain’s end-market (Grunert et al. 2006). Therefore, the important condition for producers in successful value chains is that, they should have better access to market information and own the ability to translate it to market intelligence. The further upstream market information on product quality and its characteristic features needed for consumer will penetrates the value chain, the more heterogeneous markets can serve better, assuming that producers can comply with market demands. In this way developing country producers may

branch out their production portfolio and capture larger added value from differentiated market channels.

1.3 Nation's Endowment Resources

Getting access to markets is not a satisfactory condition for developing country value chains to be able to sell their products. Supporting infrastructures, resources including knowledge and Capabilities are conditional for these chains to be successful. According to Porter (1990), factor conditions relate to the nation's endowment with resources such as physical, human, knowledge, Technology and infrastructure. These factors enable or constrain value chain upgrading. Typical constraints faced by companies in developing countries include lack of specialized skills and difficult access to technology, inputs, market, information, credit and external services (Giuliano *et al*, 2005).

The low levels of available physical resources can obstacle value chain upgrading such as input materials for production and other input supplies (e.g. energy and water). For example, in Eastern African countries high energy costs limit growth possibilities for companies and value chains. Secondly, the competitive position is affected by geographic position of a company or value chain, for example if it is located far from high-value markets (such as countries and regions in Central Africa). Last but not least, availability of knowledge (production, distribution, and marketing) and educated labor is an important condition for innovative behavior of value chain players and also the level and availability of technology that can be used in the value chain for production and distribution activities. Besides availability of these resources, the basic condition for value chain development and upgrading is adequate distribution and communication infrastructure is must. Poor infrastructures will hamper efficient flows of products to markets and exchange of market information upstream in value chain process.

1.4 Institutional Arrangements for technological change by Innovation

In the present era of agribusiness business, we recognize that, the business environment of value chains is institutions, its impact on organizational life. Among many definitions of institutions, Scott (1995), who makes a peculiarity between regulative, normative and cognitive institutions. Regulative institutions include legislation and government

regulations and policies that companies can use and/or have to obey with it. Normative institutions are rooted in business practices, business policies and ethical standards. Cognitive institutions are based on rules and schemata the way people interpret and make sense of the world around them. Hence, assorted cultural belief systems, values and identities inform to perform different roles as consumers, producers, policy makers, citizens, etc., people as a whole.

Developing countries are often characterized by institutional invalid nature; Institutional arrangement is defined as “situations where institutional arrangements that support markets are absent, weak or fail to accomplish the role expected from them” (Mair and Marti 2008). Government regulations, legislation and policies can create barrier in value chain upgrading, amongst other ways by setting trade barriers for production materials and production technology, by limiting the flow of information, national as well as international, by imposing unfavorable taxes and by denying infrastructural investments that would benefit value chains. Furthermore, business characteristics and performance of business relationships can limit value adding and profit orientation in valued chains. Hence, for development in Institutional arrangements, government should facilitate the support for innovation and upgrading is very vital part of development (e.g. Murphy 2007). Moreover, standards, norms and regulations set by Western retailers and industries and supported and enforced by local governments and NGOs shape the institutional environment of developing country producers (Perez-Aleman and Sandilands 2008; Rissgaard 2009; Muradian and Pelupessy 2005; and, Dolan and Humphrey, 2000).

1.5 unproductive performances of APMC markets:

In the current marketing setup, APMC markets occupy an important position. Even though the APMC Act has been repealed, a significant part of the produce is routed through APMC markets owing largely to the absence of effective alternatives. Going by their mode of operation, these markets are inefficient with opaque pricing process. They are plagued by collusion of APMC agents amongst themselves and with the traders thus depriving farmers of the fair price for their produce. There is a high level of physical

wastage at this level of the value chain. Also, the licensing of the commission agents acts as an entry barrier for other entrepreneurs to be a part of the chain.

1.6 Absence of legislation to check collusion:

In developing countries, there is no effective governmental enforcement to check the extensive collusion between different intermediaries in the value chain which eventually leads to low returns to the farmer and the high prices for the consumer. Basically in this new area of business, a country's ability is judged based on capacity to generate highly skilled competencies and skilled personnel who will become its greatest asset in being able to positively integrate into global value chains process, to gain control over new competencies and shift functions and places within a value chain, to resolve the collusion, and also, to ensure upward income allocation through active participation in such value chains. This necessitates that, the spatial and vertical distribution of profit and incomes within global value chains should be viewed as indicators of barriers to entry and acquisition of assets rather than as unequal (i.e. unfair) exchange of profit by foremost firms. For where developing countries, economies, firms, and regions are located, where new international re-allocation makes a huge difference to the lot of ordinary people. Hence, there is need to develop and adopt the organizational skills to the individuals who are engaged in legislative checks at market and firm level. These activities are largely observed nowadays linked with lean production, which will reflect on performance with observe to inventories, quality, new product development and lead time. Similarly, relational ships in the chain are also reflected in these performance indicators, but at the chain level these should be checked in order to avoid collusion among intermediaries rather than the firm level.

1.7 Ineffective management techniques in Value chain:

In many countries, there is no proper management technique in value chain that ensures the efficiency of the chain. As a result, practices like Demand-Supply matching, efficient transport scheduling, management of financial flows, etc. have not yet found a place for themselves in the value chain. An additional restraint of value chain analysis

is its inability to analyze precise, further specifically, objective assessment and ranking of impacts of upgrading strategies and optimal entry points for intervention are lacking. While qualitative approaches distinguish that value chain and their relationships are dynamic, less awareness has been paid to the potential unplanned consequences of interventions or changes to one part of the value chain over time (Lee et al., 1997). Therefore, the scale of investigation is often too aggregated to conduct specific types of policy analysis.

1.8 Logistics Barrier

The movement of products between places is one of the most important function at every stage of value chain i.e. right from the threshing floor to the point of consumption. Most of the goods are not consumed where they are produced. All agricultural commodities have to be brought from farm to local market and from there to consumers. Logistics is an important marketing function, it has increased with urbanization. The characteristic of bulkiness of most farm products makes their transportation and storage difficult and expensive. This fact also restricts the location of production to some extent near the place of consumption or processing. The price spread in bulky products is higher because of the higher costs of transportation and storage. In Bihar, there was insufficient infrastructure available for warehousing, distribution, cold storage and transport. In 2009, Bihar produced 50, 33,000 tonnes of potato while the cold storage capacity for potatoes was a meager 13, 62,429 tonnes (Central Potato Research Institute, 2010). Thus there is a huge infrastructure gap which leads to a high level of wastage across the chain. This in turn leads to a significant escalation in the price of the commodity.

2. Actual production Systems on Supply side

The actual production refers to supply of farm produce to consumers, here the quantities of the product which will be offered for sale at different prices at a given time and given market. There exist a logical relationship between supply and price. The higher the price, the larger the quantity that is offered for sale in the chain. Hence, we have understand the factors which affect the domestic production of the farm products like

weather, technology, land suitable for cultivation, availability of inputs and relative input-output prices. Further, the domestic supply of a product can be augmented either by imports or restricted by allowing exports. The relative significance of these factors varies from country to country and even within the same country, time to time.

2.1. Production Pattern

Significant changes occur in the production pattern because of technical, economic and institutional factors. The market structure should be reoriented to keep pace with such changes.

The essential causes of price declines of commodities in value chain have been widely attributed to faltering consumer or import demand under international marketing and conditions of limited credit availability. However, supply side indicators have also made significant contribution to price declines during production of major commodities with regard to lower inputs prices, particularly towards transportation. Hence, major uncertainty remains as how these factors will evolve in near term and affect the future of agricultural value chains (Colman et al, 1993).

2.2. Seasonality of production

Farm products are produced in a particular season; they can't be produced during the year. In the harvest season, prices fall. But the supply of manufactured products can be adjusted or made uniform available for the year. Their prices therefore remain almost the same during the year. The agricultural markets are typically seasonal in nature. Agricultural products are harvested at particular times of the year and after that, the produce is available in large quantities and thus at lower prices. Therefore, they steadily get more expensive until they are only less quantities for high price, it also, depending on storage possibility. A farmer who has low harvest is unable to store enough seed for planting, must purchase externally at a higher price during unseasonal period prices will be very high. If the farmer borrows seed for planting he must pay back even more grain after the harvest. This takes the form of a high rate of interest and unable to bring produce to value chain markets; finally it will reduce the profits of farmers. The supply of agricultural products is uncertain and irregular because of the dependence of agricultural production on natural resource endowment. With the varying

supply, the demand remaining almost constant, the prices of agricultural products vary substantially.

2.2. Variation in quality of products

There is large variation in the quality of agricultural products, which makes their grading and standardization difficult. Hence, it is always suggested that, it will be advantageous for the farmer to sell the produce after grading and standardization it. So that, these produce can be sold off quickly by the consumer. Many studies have shown that sellers get higher total income when they sell their produce after proper grading it. The additional income is also generated by doing so than the cost incurred on the process of grading and standardization. Hence, better quality will be an incentive for the farmers during the process in value chain system.

2.4. Lack of quality inputs at affordable prices

Among all inputs in the production systems, Seed is the most important input in terms of cost and impact on the process of production. Many research studies, World Bank report reveals that, medium size tubers meant for table-purpose usage were used as seeds. The cost of certified seed was Rs. 1400/quintal available at subsidized prices in Patna. Apart from this, there was an additional cost of transportation to be borne by the farmer. Thus in most cases farmers store a part of their produce in the cold storage which is used as a seed, which impact on the yield obtained. On the other hand, the susceptibility to diseases also increases significantly. Similarly, other inputs like fertilizers and pesticides were not accessible at reasonable prices. The consumption of fertilizers per hectare in Bihar in 2003 was half of what was consumed in Punjab. (World Bank, 2007). Also, it is observed that, many farmers were shifting towards diesel pumps for irrigation due to increase in the cost of production due to shortage of electricity which was forcing farmers to accept change. Hence, adequate knowledge of processors' requirements, lack of laboratories and instruments for quality control, price and quality of the farm services are essential in the value chain to get more profits from appropriate inputs needed in the production process.

2.5. Inferior farm Mechanization:

Mechanization has become popular in almost every human activity. In recent time, the rapidity of mechanization in all stages of farm production, including harvesting and threshing, has gained momentum. There is need of mechanization or modern technology to reduce the time taken in performing various farm operations as well as the cost of these operations. As a result, the surplus of marketable and marketed produce is bigger. This has created overcrowding and congestion in the markets especially in food grains. At farm level, virtually no mechanical device is used to unload, clean, dry and weigh. As the result, the present value chain markets are congested and call for an enlargement of market capacity. This market capacity can be enlarged either by enlarging the size of markets or by implementing new technologies in value chain process. The new technological development includes such as telephones, light, water, godowns and banking. All these are capital intensive in nature. Therefore, the only alternative to enlargement of market capacity is enlargement of size of value chain, this can be done by introduction of various marketing operations. The level of adoption of modern technology was observed to be very low northern parts of India especially Bihar. This can partly be attributed to the small size of land holdings. In most cases farmers relied on mass media (TV/Radio/Newspaper) or other farmers for accessing information (World Bank, 2007). The agricultural research is yet to effectively find its way to the fields.

2.6. Poor access to formal credit:

This reflects a combination of low levels of bureaucracy, low interest rates, access to venture capital and regulations on security. At the firm-level, the limited reach of banking institutions forced farmers to seek credit from informal sources such as private moneylenders who charged exorbitant rates of interest. On account of the low levels of awareness, collusion between bank officials and middlemen who charged huge commissions for assisting farmers in getting the credit and several other reasons, a significant part of the farmers contract their debt from private moneylenders. The high cost of credit contributed significantly in increasing the cost of potato production. The

constraints existing across the supply chain once the produce moves beyond the farm to the consumer can be classified under this head.

2.7. High volumes of unprocessed forms:

Processing is an important marketing function in the present day marketing of agricultural commodities. A large proportion of farm products were sold in an unprocessed form and a great deal of the processing was done by the consumers themselves. Apart from this, in an inefficient value chain, an inferior quality of processing, high taxes and duties and very few food processing units has destined that the level of food processing remains at very low levels. This has acted as a serious impediment in the way of farmers getting low returns for the produce. Hence, consumers prefer processing for most of their requirements. Many technological changes should in the path of value chain for agriculture and dairy products and also modern methods of packing and preservation. These technological changes have had a significant impact of economic and social status of the farmers and it also contribute to the growth of trade.

2.8. Gender Barrier:

In comparison to men, women face higher disadvantages, in particular in terms of mobility, access to assets and to productive resources, and access to market information, with the result that they find it more difficult to access and maintain profitable market niches and capture a larger slice of incomes in the value chain. Women have lower pricing power and less daily profit than men, mostly because of their lack of pricing information, but also because of difficulties in accessing markets (e.g. mobility, security, tradition). In value chain analysis, many studies on livestock in particular reveals that, it is essential to an understanding of markets, their relationships, the participation of different players and the critical constraints that limit the growth of livestock production and consequently the competitiveness of smallholder farmers especially women farmer. These farmers currently receive only a small fraction of the ultimate value of their output, even if, in theory, risk and rewards should be shared down the chain. Empowering poor smallholders, especially women are need of an hour.

So that they can provide high-quality, sustainable livestock production with an identified market destination by assuring adequate access to basic production inputs, credit, capacity-building, market-related information. There is also a need to create an enabling environment which facilitating poor women farmers' and livestock keepers' access to markets as a catalyst for rural poverty reduction by improving their business management skills and marketing strategies, ensuring that they have the knowledge and technologies required to meet quality and sanitary standards, providing adequate infrastructure. By this acts, we can ensure that the economic gains in value chains are fairly distributed among the various players in the chain, including poor women farmers and livestock keepers by reducing marketing distortions, building relationships among various chain actors, strengthening farmers' organizations and livestock traders' associations (IFAD, 2010).

Box.6. Apart from barriers, Information on improved products and processes will increase competitiveness in value chain markets.

- ✓ A highly-functioning value chain is able to generate profits based on developing, producing and communicating consumers-recognized value (Marston, 2008). Focusing on productivity, particularly at the farm level, without giving due attention to the overall value chain will negatively impact competitiveness.
- ✓ A successful value chain must prioritize its objectives by clearly identifying the desires of its target consumers, and translating that information into continually improved products and processes. Otherwise its ability to remain profitable through attaining a level of sustainable competitive advantage will be doubtful at best.

CHAPTER.10

Need of Innovation in Value Chain Analysis

The process of translating an idea or invention into a good or service that creates value or for which customers will pay. An innovation is crucial to the continuing success of any organization, it is an idea that must be replicable at an economical cost and must satisfy a specific need. Innovation involves deliberate application of information, imagination and initiative in deriving greater or different values from resources, and includes all processes by which new ideas are generated and converted into useful products. In business, innovation often results when ideas are applied by the company in order to further satisfy the needs and expectations of the customers. In a social context, innovation helps create new methods for alliance creation, joint venturing, flexible work hours, and creation of buyers' purchasing power. Innovations are divided into two broad categories:

- (1) Evolutionary innovations (continuous or dynamic evolutionary innovation) that are brought about by many incremental advances in technology or processes and
- (2) Revolutionary innovations (also called discontinuous innovations) which are often disruptive and new.

Innovation is synonymous with risk-taking and organizations that create revolutionary products or technologies take on the greatest risk because they create new markets. Imitators take less risk because they will start with an innovator's product and take a more effective approach.

Innovation has been variously defined as:

- “The commercial or industrial application of something new, a new product, process, or method of production; a new market or sources of supply; a new form of commercial business or financial organisation (Schumpeter, 1983)

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- Innovation covers a wide range of activities to improve firm performance, including the implementation of a new or significantly improved product, service, distribution process, manufacturing process, marketing method, or organizational method (Drucker,1985)

Kaplinsky (2000) defines the value chain as ‘the full range of activities which are required to bring a product or service from conception, through the intermediary phases of production, delivery to final consumers, and final disposal after use’.

The innovation value chain view presents innovation as a sequential, three-phase process that involves idea generation, idea development, and the diffusion of developed concepts (Morten T. Hansen and Julian Birkinshaw, 2007). Idea generation, in this process people within units can’t generate good ideas on their own those should be collaborated within units and also collaborate with outside parties like good ideas from customers, competitors, inventors, and other external parties. Next is Idea conversion, In this process idea should be converted for screening and funding criteria are so strict that they shut down most ideas, or so loose that your company overflows with projects that don’t fit our requirement plans and these developing ideas should be converted into viable products, services, or businesses. Finally, Idea diffusion, the last process where developed ideas don’t get buy in from customers, internal constituencies, distribution channels, or desirable geographic locations. Ultimately idea diffusion of developed ideas should move within and outside the firms. Hence in each link along the innovation value chain, there may be one or more activities that a company excels in the firm’s strongest links. Conversely, there may be one or more activities that a company struggles with the firm’s weakest links.

Value chain analysis comprises bring together of key actors, relations, price flows, value added, marketing costs, profits, risk and benefit distribution and governance. Further, Implementation of innovation is very important aspect of value chain; it can be only achieved by systematically and effectively. Innovation implementation majorly depends on the managerial factors that make up systematic innovation in successful firms with various outline and operations.

7.1 Building Blocks of Innovation

Many researchers explained about innovation, however, according to Danny Samson, he says that approach should examine key building blocks of innovation, and these are indicated in overview in Figure 7. He examined that, how these firms drive their activities in each of these areas of activity, and importantly, how they connect them up to achieve a powerful, company-wide innovation focus. The building blocks in Figure 7 and some of the connections between the players are discussed as mentioned below.

1. *Strategy of innovation*

A pioneer for a systematic innovation capability is to engage people in deliberately and purposively in a strategy. The proper resources should be provided and awareness among firms for what it is made. Strategy is usually best made basic and clear so that staff and indeed all stakeholders can understand and flexible with it, hence we would expect to see systematically innovative companies ‘talking the talk’ of innovation at all levels of the organisation, on the way to ‘walking the walk’ of innovation. This product and service innovation leads to revenue growth that brings increased productivity and quality in the value chain among players and firms. In abstract, it is possible to identify the extent to which innovation should be core part to a business’ plan. If it is not a key part of its stated plan, then it is the first building block to work on, assuming that systematic innovation is a desired outcome.



Source: Danny Samson (2010)

Figure 7: Organized innovation capability requires a focus on innovation in every one of the key building blocks and the connections between them.

2. Operating practices and resources

Operating practices must focus the implementation processes of innovation by conducting the research and development, expanding creativity and thinking outside the box, ability to take risk and an approach to new value as against same-old practices in the value chain. Thus, it creates also Problem solving activities would encourage new ideas and creativity. Ideas for improvement of processes and customer value creation would come bubbling up from the bottom levels of firms, and be accepted and valued as such at the consumer needs of the produce. Similarly, the governing bodies and executives would guide with careful risk taking and willingness to experiment with the changing situation. And the essential resource should be collected and efforts to be made to convert those resources and talk into innovation actions plans for the firms. The resources can be like time for staff allocated to work on innovation ideas and projects,

funds spent internally on such projects, providing training and resources spent also on external partnerships related to innovation and progress.

3. Measures of performance

The performance measures always differ from time to time with region to region. A vital measure of performance would be the progress in generating value through innovation. Further, innovation inputs would be scrutinize and cautiously allocated and controlled, as they are important and scarce assets to the organization/firms which are to be used sensibly. Within the organisation's processes, innovation intensity would be assessed like number of new ideas, revenue from new market offerings or process improvement rates or reduction in operating cost through innovation.

4. Rewards and recognition

In methodically innovative firms, the staff should be recognised and rewarded openly for their innovation contributions. These rewards may be financial or in the form of other tangible benefits like contributors family tour etc. Some firms pay their staff for innovations and continuous improvement ideas, it may also include additional benefits as monetary or non-monetary bonus elements, and some have powerful recognition systems, either formal or informal, depending on their norms and culture.

5. Behaviour and culture

Finally, the last loop on innovation (see Figure 7), it is people do innovation, but rather than machine. Once the business measures of innovation are in completed, based on plan and working resources focussed on innovation, then the rewards and recognition will lead to a communal mindset and motivate the set of behaviours that drive innovation. This act will lead to turn strategy and operating resources and priorities into action and success. An innovative culture can be created, by systematically adopting as second-nature for employees to creatively attempt to find innovative solutions to challenges, to constantly strive for continuous improvement, and to know how to evaluate risk and return of new activities. In such firms, innovation becomes embedded as part of daily regular work.

Further, Danny Samson says that, with the help of systematic innovation we can build better firms linkages then it represents a very worthwhile long term goal, and propose

the journey towards it will be highly value creating and satisfying in itself. To achieve the firm's innovation behaviours in value chain, role modelling by senior managers is a critical symbolic behaviour. Hence it is very crucial to monitor the staff or persons engaged in innovation process, their managers and leaders being innovative with risk should be followed for long term change in innovation process.

7.2 Need of Innovation Capabilities for Different innovation gaps in Value chain process

Value chain transform depends on kinds of capacities of the firms that able develop to deal with stable state and continuous innovation. This decides the 2 different kinds of innovation space in which value chain operates. The type-I is very important one where the challenging is innovating relatively stable framework. It should indicate the clear rules of game, the identity and the nature of competitors are known, the sources of ideas and the relationships along the flow of chain are well established and underlying requirement is essentially to know that, "doing what we do, but better. This not only multiple task but also it should be organised and managed to favour the established players who have learned through their experiences, who can contribute best to structure and operate the innovation process for its relatively steady state.

Conversely, Type-I is a volatile, unpredictable and essentially unstable state which operates on the edge of the disorder. As a result a new situation will be emerging which is triggered by continuous shifts in markets, technology or any policy aspects in the government which is not clear. These emerge over time as fluid and turbulent state gradually gives way to a more stable set of conditions with a clear route for future development (Abernathy and Utterback, 1975).

The table.7 indicates the innovation management challenges faced by these two different environments. Type-I organizations players are good at creating and operating, geared to "doing what we do better" and to repeating the innovation trick which enables the structures and procedures of steady stream of product, process and service innovations. Whereas, Type-II organizations are much more like new entrants who are agile and flexible, able to switch the direction to make new experiments around the emergent new rules of game. Hence, working out of box in this pattern of player's behaviour in the changing value chain market process requires a new set of approaches

to organizing and managing innovation. As a result established and well proven routes for stable state conditions may break down here. Further this problem is compounded by the networks of relationships the firm has with other firms. Basically, most of basis for innovation lies at a system level involving networks of suppliers and partners put together knowledge and other resources to create new offering.

Blinking innovation is always problematic in nature, because it may involve in building and working with the significantly different set of partners from those the firm is accustomed to working with. Whereas ‘strong ties’ will tend to close due irregular innovation and consistent relationships with regular partners in a network are very important in enabling a steady stream of continuous improvement in innovations, many studies and evidence suggests that, where firms are seeking to do something different they need to exploit much weaker ties across the chain in order to get access to new ideas and different sources of knowledge and expertise (Phillips *et al*, 2006).

Hence, the players of value chain have many options between these two poles, including setting up special units within established business organizations or we have to develop managing more “open innovation” operations which will boost the entrepreneurial strengths of small players in value chain.

7.3 Developing new Innovation Capabilities for Irregular shifts in Innovation.

In order to develop capability to deal with irregular shifts in innovation, organizations should need to experiment, imitate, adapt and also learn new patterns of consumer’s behaviour. And they have to develop the properly structured and embedded as a long term capability. This process has six key dimensions in the model of innovation. They are

1. Search for new firms
2. Strategic selection for developing competitive edge
3. Implementation
4. Innovation Strategy
5. Innovation Organization
6. Building better linkages across the chain.

1. The players in the value chain should make a note on exclusive selection of firms or new firms for developing new innovation capabilities with good practice in the long term relationship. Here in this dimension, firms need to scan and search their environments both external and internal to pick up and process the signals towards potential innovation. These could be needs of various kinds or opportunities arising from research activities somewhere or pressures to conform to legislation or through the behavior of competitors all these should be taken care before selection of the firms for innovation capabilities. However, these should represent the bundle of stimuli to which the organization must act in response.

2. Strategic selection in this dimension among the identified potential triggers for innovation firms need to chosen. Further, it should be known that what they will commit resources to doing for innovation capabilities. Sometimes even the best resourced organization can't do everything, so the challenge lies in selection of firms which offer the best chance of developing a competitive edge.

3. Implementation, after successful selection of the firm with suitable option, organizations need to grow it from an idea through various stages of development to final launch which as a new product or service in the external marketplace or any new process or method within the organization. On the other hand, organization should also check for other problems like where to get hold of the knowledge they need, how to find and integrate different groups of people with key skills etc. All this work should be done against a background of high uncertainty.

4. Innovation strategy is about risk taking ability of the players where they are going into new and something completely unexplored spaces. No resource are wasted from the organization in scattergun fashion due to this the innovation needs a strategy. But equally we need to have a degree of courage and leadership, steering the organization away from what everyone else is doing or what we always done and into new spaces.

5. Innovation organization is vital dimension in the building innovation capability, here firms need a structure and climate which enables people to organize their creativity and share their knowledge to bring about the change. It is easy to find prescriptions for

innovation organizations which highlight the need to eliminate stifling administration. Hence poor structure leads to communication barriers and blocks the flow of good ideas in the organization, here we must take care of these traps.

6. Proactive linkages, is the last dimension in innovation capability process, here firms need to build bridges across boundaries inside the organization and to the many external agencies who can play a part in the innovation process like suppliers, customers, sources of finance, skilled resources and knowledge.

Table.7. Different innovation space for Type-I and Type-II discontinuous (irregular) Innovation.

Type-I Innovation organization	Type-II Discontinuous innovation
1. This operates within mental framework based on clear and accepted set of rules of the game.	1. No clear rules, these should adjust with time and should have high tolerance of ambiguity.
2. Strategies path dependent in nature	2. Path independent, emergent, probe and learning nature
3. Clear selection environment	3. Fuzzy and emergent selection environment
4. Selection and resource allocation linked to clear route and criteria for fit	4. Risk taking, multiple parallel bets, tolerance of failure.
5. Operating routes refined and stable in nature	5. Operating patterns emergent and fuzzy

Source: John Bessant (2008)

CHAPTER.11

Approaches to Study Efficiencies in Value Chain

How to Estimate the Production Efficiency in Value Chain Analysis

It is essential to examine the productive efficiency of different players in the value chain. This we can refer as “yardstick” for measuring efficiency in value chain, to promote further progress and also to bring better improvement in the future plans of value chain. Hence, it is essential features to measure this change in value chain, where we can say it as yardstick or index in value chain.

How to connect yardstick to problems?

Production efficiency measures are seldom important in its own right, it needs to be set against the challenges which faced by the firm. Most often, ability of the firm that decides the challenges handling capacity of firm in it or its chain tackle in its final markets. These success factors will vary from firms to firms and region to region, but many research and business organization says that, the efficiency can be measured in terms of cost benefits, flexibility in time allocation to name few. The key drivers which this chain faces are:

- Cost competitiveness
- Quality
- Flexibility in time to reach orders to the end user or customer (external operational activities).
- The capacity to increase the improvement in continuous fashion. (Internal operational activities).
- The ability to make more fundamental changes to products and processes by innovation process
- To increase the output per employees in the firms

Assembling each of these market drivers necessitates operational practices, and it will impact in performance outcomes; both these performance outcomes and practices can be measured as yardstick, against internal operations over time and against competitors.

For Whom the production efficiency is measured ? The analytical challenge is to document *relative* productive efficiency, but relative to whom? Here there are a number of options,

Comparing a firm or a chain against:

- its own, historic performance
- the performance of firms doing very similar things (for example, fresh fruit with vegetable packers); this close-comparison is especially useful, but may often be difficult to achieve
- The performance of firms in the same sector, but not making the same products. Performance of firms in other sectors, but with similar processes (for example, comparing quality processes in banking and insurance services)
- In general, standardization is best undertaken with firms producing like-for-like Products and services, but this may often not be possible.

Table 8: Applications of tools and analysis in different stages of Value chain

Market drivers	Operational performance measures	Linked organisational practices
Cost Minimization	Inventory used for raw materials; work in progress, and other finished goods.	Single unit flow, quality at source i.e. farmers field level, optimum production,
Quality Enhancement	Customer return rates and their produce feedback on agricultural products, internal reject, rework and scrap rates, return rates to suppliers	Quality control structures, statistical process control, quality circles and team Working.
Operational value chain flexibility (external activities outside the firms/organisations)	Time required to make delivery of produce point to customer, delivery frequency of suppliers and supplier delivery honesty, delivery frequency to customers and delivery consistency	Business process trade, structures in order processing and dispatch, value chain relationships and its management
Flexibility in Internal Operational flexibility (inside the firms/organisations)	the processing of vegetables and fruits by using improved machines, batch and lot sizes, inventory levels, production flow	Production scheduling for processing, JIT, multi-tasking and multi-skills, production for processing fruits and vegetables.
Capacity to change through Human resource development	Literacy and numeracy levels, employee development and training, suggestion schemes, labour and management turnover rates, absenteeism rates, output per employee	Continuous improvement in work organisation, worker development and commitment programmes, industrial relations
Innovation capacity	R&D expenditure (process and product), contribution of new products to total sales at regional and national level in the firms	Concurrent trade, R&D

Source: Barnes, 1999; Industrial Restructuring Project: Policy Brief no 5, 2000

What to measure in production efficiency? Two sets of measurements are important:

- Which activities are to be estimated? In general, examine has been applied to activities involving the physical transformation of inputs, for example operations on the shop-floor in industry, growing practices on the farm in agriculture, and down the mine in the resource sector. But in many cases, and increasingly, these transforming activities may not be critical to chain effectiveness, and may also represent only a small fraction of total final costs. Therefore, where relevant and possible, it will also be desirable to make standard comparative processes in design, marketing and office activities (such as order-processing).
- A distinction should be drawn between practices and performance. For example, quality circles and continuous improvement schemes are *practices*, which can be readily compared between firms (number, content and duration of meetings), whereas the percentage of waste in production, the products returned by consumers, and number of suggestions recorded are *performance* outcomes.

A major problem here is that many firms do not collect the relevant data, or may collect data but not centralize the information which has been recorded. In these circumstances, the researcher may have to visit the relevant middle managers and assemble the relevant firm-level data.

How to organize production efficiency Measurement? Depending on the depth of analysis, the best way to measure is to visit each of the comparative firms/farms, and to collect a mix of quantitative and qualitative data. Hence there is need of exclusive organizational structure meant for monitoring the value chain. These structures specifically focus on chain of value chain process right from the planning to production, distribution and consumption. There are established standard specific to the industry which need to be adhered.

Hence, firms which are linked to affiliates in council level may already participate in internal standard activities, and may see this as being in conflict with the proposed yardstick, or as being unnecessary. In these circumstances, approaching the firm as

independent researchers, without mentioning the phrase measuring, may be the most effective point of entry.

Box.7. Role of Value chain in global Market Integration to boost Efficiency

- ❖ Value chains are a key framework for understanding how inputs and services are brought together and then used to grow, transform, or manufacture a product; how the product then moves physically from the producer to the customer; and how value increases along the way.
- ❖ The value chain perspective provides an important means to understand Business-to-business relationships that connect the chain, mechanisms for increasing efficiency, and ways to enable businesses to increase productivity and add value. It also provides a reference point for improvements in supporting services and the business environment. It can contribute to pro-poor initiatives and better linking of small businesses with the market.
- ❖ Fundamental changes in international commerce and finance, including reduced transport costs, advances in telecommunications technology, and lower trade barriers, have fueled a rapid increase in global integration. International flows of goods and services, capital, technology, ideas, and people offer great opportunities for nations to boost growth and reduce poverty by stimulating productivity and marketing efficiency, providing access to new markets, and expanding the range of consumer choice.

CHAPTER 12

Factors Contributing for the Success in the Value Chain Analysis

The market characteristics are referred to as *Success Factors*. Generally, in low income final markets, price will be a relatively important factor, but it will not be unique. Customers will also require quality, differentiation and branding. In higher income final markets these non-price factors will generally be relatively more important, with innovation, customization and quality dominating. In intermediate markets, firms may entry into a variety of chains serving the needs of different final market segments. By comparison, assemblers selling into the budget, mass-market may be more concerned with price, and may prefer larger volumes of relatively standardized components.

Not only are markets increasingly segmented, with each segment having characteristic combinations of success factors, but they are highly volatile. The Success Factors in each market can be readily grouped into those factors which are “order qualifying” is that, where producers need to achieve these in order to participate in these markets, and those which are “order winning” the condition in which, the success factors which lead particular firms to succeed, perhaps by selling at a price premium (de Meyer et al 1996). How can these different market characteristics be researched? For those researchers having access to on-line search capabilities or to well-served libraries, first ports of call are range of reports which are prepared by consultancy firms.

Many studies reveal that, there are many factor in the value chain, however the main success factors (Barnes, 2000) are mentioned as below

1. Quality

To implement control over the production process, the firm will be in a position to improve its quality of raw material and thereby the quality of final product. Thus, in a cut-throat market environment, the consumers are quality conscious and better quality help for better establishment its comparative advantage and quality standards.

2. Price and production

Production and price risks are higher in market oriented economies. Institutional arrangements are very rare to regulate these risks in the developing countries; therefore farmers grow low risk-low profit crops. Many studies reveal that, farmers are risk averse and are willing to pay a premium for stable income through guaranteed income schemes. The firms that insure farmers against price risk can earn a premium in terms of having an assured supply of raw materials.

3. Packaging

Packaging is required for nearly all farm products at every stage of value chain process. The type of container used in the packing of commodities varies with the type of the commodity as well as with the stage of value chain. For ex: gunny bags are used for all food grains when they are taken from the farm to the market. Similarly, packing milk or milk products requires plastic, polythene or glass containers are used. Finally, produce should be packed either to preserve them or for delivery to buyers.

4. Delivery reliability

It is the supplier's ability to predictably complete processes as promised. It is measured by perfect order fulfillment and demonstrates the degree to which a supplier is able to serve its customers within the promised delivery time.

5. Conformance to standards

Value added food commodities are thin. So, the players should adhere to the quality standard and selling in distant markets increases transaction costs. This act as a handicap to farmers to add value in the chain process. Hence, legislative checks should be made for better standard of produce available throughout the value chain process.

6. Innovation

New technology is needed to obtain improved production of high value commodities. This can be done better with innovation process in the chain. The production of any commodity with a specific quality requires a specific set of agro-climatic conditions including soil quality. The firms can take advantage of new technologies or new innovation by transferring these to needful player in the chain.

7. Flexibility in Farming skills

The firm has a direct interest in managing the quality at the farm level, and it therefore provides improved technologies, technical assistance and information to the producers to improve the quality of output. This considerable, particularly to those who have no previous experience in undertaking the production of commodity in requirement. The farmers should otherwise invest costs on technology and getting training.

8. Financial stability

The availability of improved marketing facilities in value chain at player's doorstep, they save time and wages incurred in information search and sale or purchase of inputs and outputs. The money saved could be utilized in other productive activities.

9. Offering of credit facilities

Value addition requires investment and financial resources. Small holders are capital starved and need credit support in the chain process. Credit markets are imperfect, fragmented and underdeveloped, whereas informal credit markets are exploitative and institutional agencies are often biased against small farmers. Conversely, firms by simultaneously affecting the farming and credit contracts are in a position to lower the transaction costs to the producers.

10. Location

For sustained supply of raw material, the firm has to produce either by itself or utilize contract farming. By put forth control over production process through the arrangements, the firm can utilize its production capacity, control costs of production and respond to changing market needs. Ultimately to the location of the firm and farm makes more matter of concern in this chain, to avoid extra costs towards transportation and others.

Box.8. Market characteristics play an important role in agricultural value chains

- ❖ Market characteristics play an important role in agricultural value chains, with different types of modern technology having different strengths and weaknesses when applied to particular interventions. The impacts of technology are diverse, and they influence market competitiveness in different ways. However, technology should not overshadow the people and institutions involved. While the positive impacts of technology are being catalogued and discussed, many rural farmers still do not have access to or the capacity to use modern technology.
- ❖ It is clear the impact of modern technology in Agriculture Value Chains is diverse, and influences the market competitiveness in different ways. Given the importance of context and the rapid development technology, it can be difficult to determine whether the appropriate tool now will persist in being the appropriate tool in the future.

CHAPTER.13

Scope for Small and Marginal Farmers in Global Value Chains

In all developing countries policy, major apprehensions often expressed is the way in which small firms can be included into global value chains. Occasionally marginal farmers are focused due to attention in their own right – for example, because they are considered to be well springs of innovation or to embody new technology very quick in their fields. But, more often, the focus on marginal farmers is a way of getting into some of the distributional issues, since in general they are associated with poor people where especially when marginal farmers are involved, poor regions and poor ethnic groups. So, where there is a focus on distributional issues, there may be better ways of getting into the determinants of income distribution by focusing more directly on the beneficiary of income than on small farmers. On the other hand, since individuals generally receive income through their participation in institutions particularly in producing, small and marginal farmer's development can be an important medium for policy liberation.

In investigating the role which small farmers can play in global value chains, the following procedure may be productive. Many small enterprises tend not to be incorporated in global value chains, McCormick and Schmitz (2001).

1.How are small and marginal to be defined? There is a loose convention that microenterprises involve the employment of less than 5 (and sometimes 10) people, small firms more than 20 and less than 50 (sometimes 100), and that medium-sized enterprises will generally employ more that 50 (sometimes 100) and less than 500 (sometimes 1,000) people. But not only will these employment-size categories vary between countries, but often employee numbers may be a poor reflection of size. This is particularly true in the high-tech sector where production is subcontracted out, and design houses employ few people, but have very high levels of value added.

In some countries, such as India, some recognition of this occurs by including capital values in the definition of “small scale”, but although this can be helpful in some

contexts, in knowledge-intensive sectors it is human-capital rather than fixed-capital which represents the major body of investments. Methodologically, therefore, in each value chain study it is important to note that:

- Size is a relative concept, and can best be explained better in relation to the nature of each value chain
- The value of fixed capital or a combination of these is reflected by size and its employment.

2. What constitutes “smallness” either it is in the context of a particular value chain, or a particular link in the value chain, and then the next step is to map the size distribution of participating firms. Primary research is required for data in relation to number of employees but in reality, less rarely in relation to size of capital or turnover is accounted which is followed in most countries’ for estimating industrial censuses, where they will not include this, but these datasets may be obsolete or have poor coverage. They also generally apply to plant size rather than enterprise size. As part of this mapping employ, the share of small and marginal farmers can be computed through the use of 2-, 5- or 10 firm concentration ratios using whatever indicator of size is considered most suitable.

3. Next, thing is to identify the strengths and weaknesses of marginal farmers for substantiation of standards. It may be possible either to compare small and marginal farmers against each other by getting some sense of the spread of efficiency within this group of enterprises or to compare them against larger enterprises. Ideally the decision should also include the capacity of these farmers to also pay attention to their markets effectively.

4. The prime strength of value chain analysis is that, the magnetism in the systemic inter- connectivity of individual enterprises and links in the chain. Marginal farmers can be united in two main behavior, either horizontally (with other players, producing similar products) or upright in value chains. The analysis needs to plan this manner of marginal farmer’s insertion into the value chain and to show the nature of these interconnections, particularly with regard to horizontal links. Schmitz’s heuristic dual distinction between links which are enterprise-to-enterprise and those which are

enterprise-to-many-enterprises and links which are vertical (up and down the chain) and those which are horizontal, is a supportive for categorizing these systemic value chain links.

5. Balancing to the analysis of the share of marginal farmers in production, the analysis should also address distributional issues. This should focus both on the profitability and incomes sustained by marginal farmers as a group when comparing these to medium and large firms, but also in intra-firms distribution.

6. Among the marginal farmers the key strength of value chain analysis is not identified and there is need to focus light on the mode in which producers are connected to global markets. This is particularly noticed as major problem for marginal farmers. Because, their size of operation is less and they are forced to sell through intermediaries. Whereas, large firms in global production systems can sell directly to a retailer and its subsidiaries. These buying set-ups are very complex, sometimes involving a number of parties. These intermediaries may not only draw off much of the profit in a value chain, but may play an important role in enabling or blocking the capacity of marginal farmers to improve in the value chain process.

7 International experiences suggest that a key factor underlying the capacity of Small and marginal farmers to insert themselves effectively into global value chains are when they combine to engage in various forms of joint action. There are a variety of forms of joint action which might include:

- a. Lobbying government for assistance
- b. Undertaking joint activities, such as quality auditing (for example, in the case of surgical instruments in Pakistan - Nadvi, 1999), branding (as in the case of many small Italian clothing and footwear firms – Best, 1990), and especially with regard to learning-networks (Barnes, 1999; Bessant and Tsekouras 2001; Morris 2001).

8. As we saw in earlier sections, entry into global markets is increasingly being governed by a series of “rules” set by private parties, rather than by governments through trade policies. These private rules include quality and environmental standards, and increasingly also labour standards. In each case, elaborate new procedures have been developed, which require firms to document their activities in great detail. This has

proven to be a problem for Small and Marginal Farmers (SMFs), even in high income countries. The outcome of this development is that SMFs will find it increasingly difficult to participate in global value chains, since in most cases these value chains have at their apex large firms who are required to meet these standards due to public pressure (for example, environmental and labour standards), and who also frequently find that these standards assist their efficiency (for example, quality standards). Researching the impact of this important issue on small and marginal farmers requires not only investigation in marginal farmers themselves (do they see these pressures emerging? what have they done about it?), but also with their buyers (are they concerned that small farmers will be able to meet these standards? has this diminished their desire to use marginal farmers suppliers? are they taking steps to upgrade these small suppliers?).

9. Marginal farmers in developing countries often find themselves in a double bind through participating in global value chains. Global supremacy has introduced a process of *homologation* governing the integration of small farmers into value chains. However small farmers, particularly in developing countries suffer from a real technology deficit in the broad sense. So although the globalization of value chains offers the real possibility of linking into more profitable export markets and opens up the potential for serious upgrading. In the developing economy, small and marginal farmers often simply do not have access to the necessary resources, equipment, materials and professional management skills to meet these conformance requirements which require them to operate at a level beyond their local environment. For example, the costs of obtaining ISO accreditation are generally invariant with respect to firm-size, and thus tend to disadvantage for small farmers.

10. The blow of globalization on farming especially for small and marginal farmers in developing countries is thus ambiguous. On the one hand it opens up opportunities for SMFs in developing countries to benefit from integrating into global value chains. On the other, it simultaneously raises the barriers to entry into these global value chains, particularly at the starting up phase. Global value chains are defined by developed economy standards and even those SMFs not exporting but supplying to firms that are intrinsic part of global value chains, find themselves being disciplined by external protocols. The general impact of this process is to force a bifurcation in the developing

world as well as within developing economies. The knock on effect of those firms those are able to make the transition is a general upgrading of standards and processes throughout the developing economy or sector, even as those that are not able to meet these conformance standards find themselves rapidly left behind and excluded with consequent major income and distributional impacts. A procedural consequence of this process for value chain analysis is the need to analyze the life cycle of developing country small farmers integration in particular global value chains, measuring local firm participation over time, not only in terms of number and rate of participation, but also their particular place in the value chain under examination.

Box.9. Facts about Small and Medium Farmers in India

- Indian agriculture is the home of small and marginal farmers (80%). Therefore, the future of sustainable agriculture growth and food security in India depends on the performance of small and marginal farmers (Mahendra Dev, 2012)
- The role of small farms in development and poverty reduction is well recognized (Lipton, 2006).
- Small holdings also face new challenges on integration of value chains, liberalization and globalization effects, market volatility and other risks and vulnerability, adaptation of climate change etc. (Thapa and Gaiha (2011).
- According to Agricultural Census 2000-01, there were an estimated 98 million small and marginal holdings out of around 120 million total land households in the country.
- In terms of production, small and marginal farmers also make larger contribution to the production of high value crops. They contribute around 70% to the total production of vegetables, 55% to fruits against their share of 44% in land area (BIRTHAL, 2011). Their share in cereal production is 52% and 69% in milk production. Thus, small farmers contribute to both diversification and food security.

CHAPTER 14

Indicators of Value Chain Efficiency

The Value chain involves a series of value generating activities, through which a farm or firm develops competitive advantage and create value. A value chain is comprised of primary and support activities. The primary activities includes inbound and out bond, marketing and sales. The secondary activities include infrastructure, human resource and technology management and procurement. In this regard many researchers attempted to analyze the methodologies to make better understanding of value chain process. We will discuss methods of estimation of profitability indicators in this chapter.

The framework paid special attention to how local production systems are linked to processing industry, trade, export and final consumption (van den Berg et al 2009). The concept was used to describe the flow of physical input and services in the production of a final product and in terms of its concern with quantitative technical relationships. Porter introduced the ‘value system’ as an alternative way of approaching the search of competitive advantage. However, in Porter’s framework, the concept of value system is mostly a tool for assisting executive management in strategic decisions. The value chain analysis, according to Porter’s approach, is therefore restricted to the firm level neglecting the analysis of upstream or downstream activities beyond the company (Fasse *et al*, 2009).

In each case study of value chain, apart from primary data survey, various documentation hold up the analysis, including Annual Reports, performance data, Business Reports, project proposals and progress reports. Material available in the public area, including the organizations’ websites maintained by state and/or central government departments also supplemented the study.

Commodity Value Chain

Gereffi (1994) originally identified four key dimensions of Global Commodity Chains: input-output structure; geographical coverage; form of governance; and institutional framework. However, he gave no indication as how to measure dimensions, nor the potential benefits of participating in one chain as opposed to another. Since then the

Global Commodity Chain (GCC) approach has become better known as Global Value Chain (GVC) analysis. The problem with the phrase Global Commodity Chain (GCC) is that the concept of a commodity does not refer to the product itself but the markets in which it is produced and sold (Kaplinsky, 1998). Thus the same product may be a commodity in some cases, but not in others.

GVC analysis describes the full range of activities required to bring a product or service from conception through the intermediate phases of production to delivery to consumers and final disposal after use (Kaplinsky, 2000). This implies that the GVC approach is all about value creation and management. As will be argued later, integrating aspects of new trade/new growth theories within GVC analysis gives us a better insight into what products countries import and export; what rewards accrue to whom; similarly how and why lead firms go about setting up and maintaining production and trade networks.

Horticulture Value Chain

Dolan et al. (1999) describe the horticulture GVC as having become dominated by large retailers that have adopted competitive strategies based on quality, year round supply and product differentiation. This has led to a dramatic change in marketing channels from wholesale markets to tightly-knit supply chains. Production has moved away from small-holders to large firms, many of which are owned by exporters.

Sourcing from directly owned units means firms are able to exert greater control over production processes and are better able to comply with quality, environmental and social standards. It also means that the necessary scale can be achieved in order to buffer major investments in irrigation systems, modern machinery and sophisticated supply-management information technologies (Farhan, 2005). Producers who are also exporters deal directly with importers within the horticulture GVC and importers, in turn, deal directly with retailers/supermarkets.

Livestock Systems Value Chain

An important component of improving the policy and development applicability of value chain analysis in livestock systems is to identify suitable modelling platforms to simulate and conduct *ex ante* analysis of alternative policy interventions. As noted

earlier, these must feature the distributional and poverty implications of selected policy and investment options in a chain setting.

Conventional micro-economic policy analysis in the economic development literature has often utilized single-sector, multi-market, or general equilibrium models. Such models are limited in their facility for modelling the dynamic and complex processes and relationships embodied in a value chain. For instance, computable general equilibrium models rely on social accounting matrices to model the relationships within an economy, but between sectors rather than within a sector.

Vertically integrated sector (VIS) models as discussed in McDonald (1996) may be a way to examine value chains in a multi-sectoral setting, but have not been applied to date. Similarly, while multi-market models lend themselves to the analysis of multiple sectors, the data requirements to build and characterize relationships between discrete actors in a value chain can quickly become overwhelming.

Some approaches found in the literature potentially lend themselves to the quantitative analysis of specific aspects of value chains. Early work by Gardner (1975), for example, provides theoretical insights into the impacts of downstream policy or demand shocks on actors within a simple value chain. Building in extensions of such approaches into value chain analysis could alert decision makers to important first-round effects of policy interventions.

In smallholder livestock systems feature numerous market failures in the form of high transactions costs, information asymmetries, limited organization capabilities, externalities, regulatory failures, and the exercise of market power. In addition to considerations of “second best,” policies that try to remedy one or more market failures at one stage in the chain, without taking into account the relationships and linkages upstream and downstream, may have unintended effects due to the feedbacks embodied in the chain over time. An improvement to one part of the supply chain, say for instance production, without concomitant interventions in better processing and marketing capacity, could lead to higher production without an adequate market outlet, further depressing prices and incentives for smallholders. This suggests a strong need for systems thinking in value chains, particularly as it relates to the development of policy interventions.

To this end, approaches that simulate the *ex-ante* impacts of alternative policies and their impact on the activities within the chain, its performance, and distribution effects among different stakeholders is warranted. A potential approach to this type of value chain modeling could come from the supply chain and logistics literature, which highlight dynamic processes embracing flows of products along the supply chain (Towill, 1996). Simulation approaches from the supply chain literature have particular relevance to model the dynamic behavior between interacting actors that livestock value chain models demand.

One such technique with a long tradition is system dynamics (SD), pioneered by Forrester (1961). A SD model is a dynamic model of flows and relationships between actors with which one can examine the impact of alternative scenarios over time, and which embody the peaks and lags present in supply chains (Sterman, 2000).

In the context of economic systems, particularly livestock markets, system dynamics tools can further incorporate inter-period relationships within and between firms and chain actors in environments characterized by risk and uncertainty (Scramin and Batalha, 2003; Ross and Westgren, 2006). Indeed, SD-like approaches are not new in the context of agricultural market chains: Slater et al. (1969) and Harrison et al. (1972) applied quantitative market chain techniques to the study of marketing systems in South America.

A recent application used SD modeling techniques to study the feasibility of a proposed two-stage Sanitary and Pyhto-Sanitary (SPS) certification Standards system for beef exports from Ethiopia (ILRI, 2008). In this proposed system, animals are brought from pastoral areas, quarantined in an initial holding area for a few weeks (Phase 1), and then moved to a feedlot until reaching export weight (400kg, phase 2), after which animals are sent to a slaughterhouse from which meat products are exported. The SD model assessed the benefits and costs over time and identified potential bottlenecks in the livestock value chain. Model results indicated that at current input prices, the system would create high-quality meat at prices higher than those prevailing in target Middle Eastern markets. The main constraint is not SPS compliance costs but rather the high costs of the proposed feeding regimes. Improving feed rations and feed efficiency would lower costs, but would necessitate capacity building in ancillary value chain functions, such as animal nutrition practices and long-run investment in better feed

resources. The challenge of the program will be not only to ensure disease freedom but to integrate the livestock value chain in a way that produces and markets a high-value product that is acceptable in target markets (ILRI, 2008).

Costs and Profitability in Value Chain

The methodology is built by Keyser, John C (2006), to calculate standard indicators of costs and profitability at each major stage of the production cycle. By filling in the elements of each template for individual commodities and farm systems, the methodology offers a practical way to establish benchmark prices that can be compared with international standards and identify specific areas where costs can most effectively be reduced through policy change or other types of investment.

According to the methodology, total costs are measured in terms of Domestic Value Added (DVA) and Shipment Value (SV), which constitute the main value chain indicators as follows.

Domestic Value Added (DVA) = Domestic costs and mark-ups [1]

+ Official duties and tax

+ Unofficial charges and extra costs

Shipment Value (SV) = Domestic Value Added [2]

+ Foreign components

Because countries mainly have influence over prices within their own borders, the methodology is particularly interested in the composition of DVA as a leverage point for enhanced sector performance. These costs include legitimate business costs and mark-ups, official customs duties and taxes, and any number of unofficial payments and bribes that sometimes have to be made to facilitate a particular operation.() If some cost accounts for a large share of total value, or is significantly higher than an equivalent international benchmark, then new policies or investments focused on reducing that cost would likely be an effective strategy for improved competitiveness.

Apart from above mentioned methods, there few important methods for estimating cost and margins with special reference to value chain markets and its channels. Hence, it is important to consumers maintaining of marketing margins at regional levels are essential for the formulation and successful implementation of marketing and price

policies. Therefore this Study focus on methodology in estimating marketing margins should include an assessment of the producers share in the consumer's rupee, the cost of marketing functions performed & the margins of intermediaries involved in the marketing of the produce. Marketing margins & costs vary from commodity to commodity and depend on the nature of the services rendered and the amount of processing involved and the market structure for the handling of the commodity. Even for the same commodity, the margins may vary from place to place and time to time. A number of factors, such as – method of assembling, the location of the market, mode of transportation, method of sale, weighing, other facilities etc, influences marketing costs and margins. The detailed methods of estimation above mentioned concepts are discussed in the next chapter.

CHAPTER 15

METHOD FOR COMPUTATION OF MARKETING COST AND MARGINS.

1. Sum of Average Gross Margins Method: - The average gross margin at each successive level of marketing is worked out by dividing the difference of the money value of sales and purchase by the number of units of the commodity transacted by a particular agency. The average gross margins of all the intermediaries are added to obtain the total marketing margins as well as the breakup of the consumer's rupees.

$$MM = \sum_{i=1}^n \frac{(S_i - P_i)}{Q_i}$$

Where,

MM = Marketing Margins

S_i = Sale value of a product for the firm

P_i = Purchase value paid by i^{th} firm

Q_i = Quantity of the product handled by i^{th} firm

i = 1, 2, ..., n (Number of firms involved in the marketing channel)

2. Comparison of Prices at Successive Levels of Marketing

Under this method, price at successive stages of marketing at the producers, wholesalers and retailers levels are compared. The difference is taken as the gross margin. The margin of an intermediary is worked out by deducting the ascertainable cost from the gross margin earned by that intermediary.

3. Producers' Price: This is the net price received by the farmer at the time of the first sale. This is equal to the wholesale price at the primary assembling center minus the charges borne by the farmer in selling his produce.

$$P_f = P_w - C_f$$

Where,

P_f = Producer's price.

P_w = Wholesale price received by the farmer

C_f = Marketing cost incurred by the farmer.

Producer's share in the consumer's rupee (pscr)

It is the price received by the farmer expressed as the percentage of the retail price i.e., the price paid by the consumer (pr)

$$PSCR = (P_f)/(P_r) * 100$$

MARKETING MARGIN OF A MIDDLEMAN

This is the difference between the total payments (costs + purchase price) and receipts (sale price of the middleman (ith agency))

- a) Absolute margin of i^{th} middleman $(Am_i) = Pr_i - (Pp_i + cm_i)$
- b) Percentage margin of i^{th} middleman $(Pm_i) = Pr_i - (Pp_i + cm_i) / Pr_i * 100$
- c) Markup of i^{th} middleman $(M_i) = Pr_i - (Pp_i + cm_i) / Pp_i * 100$

Where,

Pr_i = total value of receipts per unit (sale price)

Pp_i = Purchase value of good per unit (purchase price)

Cm_i = cost incurred in marketing per unit.

Total Cost of Marketing:

The total cost, incurred on marketing either in cash or in kind by the producer-seller and of the various intermediaries involved in the sale and purchase of the commodity till the commodity reaches the ultimate consumer, may be computed as follows

$$C = C_f + Cm_1 + Cm_2 + Cm_3 + \dots + Cm_n$$

Where,

C = total cost of marketing of the commodity.

$Cm_{1,2,3,\dots,n}$ = cost incurred by the i^{th} middlemen in the process of buying and selling the product.

MEASUREMENT OF MARKETING EFFICIENCY:

The Market efficiency is measured through Shepherd Index, which is mentioned below

$$E = \frac{O}{I} \times 100$$

Where, E = marketing efficiency which can be expressed in % terms by multiplying with 100, O= output of the marketing system which is the value added to the product after it has left the production point (or farm) till it reaches the consumer. The difference in the price at the farm level (price received by the farmer) and retail level (price paid by the consumer) may be used to measure the value added.

I= input used in the marketing process. This is measured in terms of total marketing costs incurred by all those involved including margins of middlemen.

$$ME = V / I$$

Where,

ME = index of marketing efficiency

V = value of the goods sold (consumer's price)

I = total marketing cost.

The term marketing efficiency refers to the effectiveness or competence with which a market structure performs its designated function.

Efficient marketing

A reduction in marketing cost without reduction in consumer satisfaction indicates improvement in efficiency. A higher level of consumer satisfaction at higher marketing cost may mean increased efficiency if the additional satisfaction derived by consumer outweighs the additional cost incurred on the marketing process. But a change that reduces cost but also reduces consumer satisfaction need not indicate increase in marketing efficiency. Efficiency of marketing system could be looked at two angles.

1. Technical or physical or operational efficiency

2. Pricing or allocative efficiency.

Technical Efficiency

Efficiency is said to have increased when cost is reduced for performing a function for each unit of output. This can be brought out by reducing physical losses or through change in technology of the function viz storage, transportation, handling and processing. A change in the technique may result in the reduction of per unit cost.

Pricing Efficiency

Pricing efficiency means that the system is able to allocate farm products either over time, across the space or among the traders, processors and consumers in such a way that no other allocation would make producers and consumers better off. This is achieved *via* pricing of the product at different stages at different places, at different time and among different users.

The above two types of efficiencies are mutually reinforcing in the long run, one without the other is not enough.

Marketing Channel: The chains of intermediaries through whom the various food products pass from producers to consumers constitute the marketing channel. The length of the channel varies from commodity to commodity depending upon the quantity to be moved, the form of consumer demand and degree of regional specialization in production.

Marketing Costs: The cost involved in moving the product from the point of production to the point of consumption i.e. the cost of performing the various marketing functions and of operating various agencies is called marketing cost. The market functionaries involved in moving the produce from the initial point of production till it reaches the ultimate consumer, charge profit margin for the service rendered. The cost involved in marketing plus the profit margin charged by the market functionaries for the service rendered constitute market margin.

Price spread is the sum of marketing costs and profits, margins of different market intermediaries involved in the marketing process.

The economic efficiency of a market is generally measured in terms of net price spread of an agricultural commodity; the larger the net price spread the inefficiency in the marketing system.

$$PR = P_f + P_s \text{ (Retail price= Farm price + price spread)}$$

$$P_s = M_c + M_m \text{ (Price spread = Marketing costs + Marketing margins)}$$

$$\text{Net price spread} = \text{Gross price spread} - \text{marketing costs.}$$

IV. Marketable Surplus and Marketed Surplus

The marketable surplus is that quantity of the produce, which can be made available to the non-farm population of the country. The marketable surplus is the residual left with the farmers after meeting his family consumption, farm requirements, social and religious payments. This may be expressed as

$$MS = P - C \text{ where,}$$

$$MS = \text{Marketable Surplus } P = \text{Total Production, and}$$

$$C = \text{Total requirement of farm family}$$

Financial analysis used in Value chain Markets.

A Financial ratio is a relative magnitude of two selected numerical values taken from an enterprise's financial statements. Often used in accounting, there are many standard ratios used to try to evaluate the overall financial conditions of an organisation or firm. Financial ratios may be used by managers within firm, by current and potential players in value chain and firms' creditors. Security analysts use financial ratios to compare the strengths and weakness in various situations.

The techniques used for the financial analysis were:

1. Net Present Value (NPV)
2. Internal Rate of Return (IRR) and
3. Benefit-Cost Ratio (B: C Ratio)
4. Pay Back Period (PBP)
5. Gross Margin
6. Return on Investment
7. Return on Assets
8. Return on Capital
9. Average Payment Period
10. Debit Ratio
11. Debt to Equity Ratio
12. Debt Service Coverage Ratio

1.Net Present Value (NPV)

It is simply the present worth of net benefit of the project discounted at the opportunity cost of capital. The criterion assesses the present worth of accrued benefits over costs. The criterion also ranks the investments for selecting the alternatives. Generally, higher the Net Present Value better would be the projects performance. In order for the project/investment to be viable, the NPV should be positive. In calculating the Net Present Worth, the difference between the present value of the cost stream and present value of benefit stream were considered at a discount rate of 12 per cent.

The general mathematical form of net present worth criterion is

$$NPV = \sum_{i=1}^n Y_i (1 + r)^{-i}$$

Where,

Y_i : Refers to the net cash inflows in the year n

r : Refers to the discount rate

I : Initial investment

i : Years of life period 1, 2, n .

In order to consider the investment worthiness, the net present value should be positive and of higher magnitude before alternative opportunities considered.

2. Internal Rate of Return (IRR)

It is the rate of return which equates the discounted benefits with the discounted costs. In other words, it is the discount rate which equates the present worth of benefits to present worth of costs. The rate at which the net present value of project is equal to zero is Internal Rate of Return (IRR) to the project. It represents the average earning capacity of an investment from the project. The net cash inflows were discounted to determine the present worth following the interpolation technique.

The method of interpolation followed is as under

IRR = Lower discount rate + difference between the two discount rates

$$\left(\frac{\text{Present worth of cash flows at lower discount rate}}{\text{Absolute difference between present worth of cash flows stream at the two discount rates}} \right)$$

3. Benefit Cost Ratio

It is the ratio between the discounted cash inflows and initial investment and ratio must be equal to or more than unity for an investment to be considered worthwhile. It is worked out by using the following formula

$$\text{B: C ratio} = \frac{\text{Discounted net cash flows}}{\text{Initial investment}}$$

4. Pay Back Period (PBP)

Payback period represents the length of time required for the stream of cash proceeds produced by the investment to be equal to the original cash outlay *i.e.* the time required for the project to pay for itself. In the present study, payback period was calculated by successively deducting the initial investment from the net returns until the initial investment is fully recovered.

Further, few financial ratio analysis was considered useful in evaluating the financial performance of the firms. The ratio analysis technique is meaning full to study the solvency, liquidity, profitability, turn over and efficiency of any value chain firms. The ratios used in the analysis are described below.

a. Tests of solvency

$$\text{Debt-Equity ratio} = \frac{\text{Long term loans}}{(\text{Share capital}) + (\text{Reserves})}$$

b. Tests of liquidity

$$\text{i) Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{ii) Quick/Acid test ratio} = \frac{(\text{Current assets}) - (\text{Inventory})}{\text{Current liabilities}}$$

c. Tests of profitability

$$\text{Net profits to total assets ratio} = \frac{\text{Net profits}}{\text{Total assets}}$$

d. Tests of Turnover

$$\text{i) Working capital turnover ratio} = \frac{\text{Total sales}}{\text{Total working capital}}$$

$$\text{ii) Inventory turnover ratio} = \frac{\text{Annual sales}}{\text{Average inventory}}$$

Average inventory is the sum total of opening stock and closing stock.

e. Tests of efficiency

$$\text{Operating ratio} = \frac{\text{Operating expenses}}{\text{Sales}} \times 100$$

5. Gross Margin

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Net Sales}}$$

6. Return on Investment (ROI)

$$\text{ROI} = \frac{\text{Net Income}}{\text{Average Total Assets}}$$

7. Return on Assets (ROA)

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

8. Return of Capital (ROC)

$$\text{ROC} = \frac{\text{EBIT (1-Tax Rate)}}{\text{Invested capital}}$$

(**Note:** EBIT is Earnings Before Interest and Taxes, It is Operating Income which is difference between operating revenues and operating expenses, but is used as a synonym for EBIT.)

9. Average Payment Period

$$\text{Average Payment Period} = \frac{\text{Accounts Payable}}{\text{Annual Credit Purchases} \div 365\text{days}}$$

10. Debit Ratio (Leveraging Ratios)

$$\text{Debit Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

11. Debt to Equity Ratio

$$\text{Debt to Equity Ratio} = \frac{\text{Long term Debt + value of Leases}}{\text{Average Shareholders' Equity}}$$

12. Debt Service Coverage Ratio

$$\text{Debt Service Coverage Ratio} = \frac{\text{Net Operating Income}}{\text{Total Debt Service}}$$

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